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CINCINNATI CONVENTION NUMBER

NATIONAL ELECTRAGIST

FORMERLY ELECTRICAL CONTRACTOR-DEALER

WITH RADIO SERVICE SUPPLEMENT

Vol. 21, No. 12

Official Journal of National Association of Electrical
Contractors and Dealers

OCTOBER, 1922

For Every Window Lighting Effect

Color Ray

Jupiter #610

Jove #600

Scoop #778

Hood #731

Use

X-RAY Reflectors

EVERLASTING BRILLIANCY

Standard for Show Window Lighting

Write for Literature

Ask how we will help
you sell X-Ray Lighting

Window Footlight

Spot Light #10307

NATIONAL X-RAY REFLECTOR COMPANY

NEW YORK CHICAGO LOS ANGELES

Engineers in all principal cities

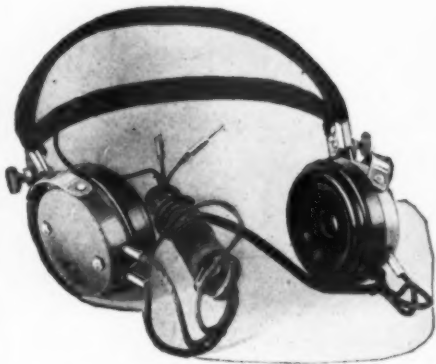
An X-Ray Reflector for Every Lighting Need!

"THE BEST THAT MONEY CAN BUY"

THE RADIO TRADE



MARK OF QUALITY



DeVeau Gold Seal Radio Head Set
Cat. No. 843



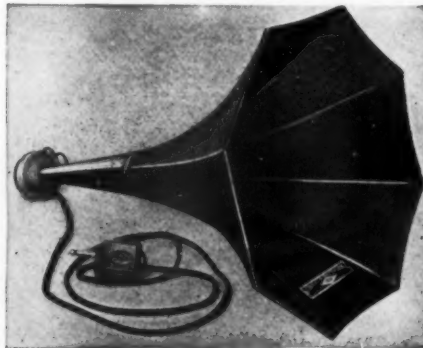
DeVeau "Silvertone Standard" Radio
Loud-Speaker. Cat. No. 833



DeVeau Gold Seal Radio
Head Set. Cat. No. 844



DeVeau "Silvertone Junior" Radio Loud-
Speaker. Cat. No. 834



DeVeau "Silvertone Station Type" Radio
Loud-Speaker. Cat. No. 836



DeVeau "Silvertone Midget"
Radio Loud-Speaker.
Cat. No. 835



DeVeau Radio Hand Micro-Trans-
mitter. Cat. No. 845



DeVeau Radio Desk Micro-Transmitter
Cat. No. 846



DeVeau Radio Adjustable Arm
Micro-Transmitter. Cat. No. 847



DeVeau Radio Flat Plug. Cat. No.
829. DeVeau Radio Round Plug.
Cat. No. 828

We manufacture the following RADIO APPARATUS:—DeVeau "Gold Seal" Radio Head Sets, DeVeau "Silvertone" Loud-Speakers, DeVeau Radio Transmitters, DeVeau Radio Cams, DeVeau Radio Jacks, DeVeau Radio Binding Posts, DeVeau Radio Phonograph Attachments, DeVeau Radio Plugs, and other Radio Specialties.

SEND FOR DESCRIPTIVE DATA AND DISCOUNTS

STANLEY & PATTERSON, INC.

New York, U. S. A.

DISTRICT SALES OFFICES:

BOSTON
C. R. Corcoran
100 Boylston St.

SAN ANTONIO
Kemp Haythorne
333 McKinley Ave.

SEATTLE
P. L. Hoadley
Seaboard Bldg.

SAN FRANCISCO
Clapp & LaMoree
589 Howard St.

LOS ANGELES
Clapp & LaMoree
310 E. 4th St.

DETROIT
DeVeau-Bartling Co.,
602 Equity Bldg.

BUFFALO
C. K. Wyatt
241 Lexington Ave. Real Estate Trust Bldg.

PHILADELPHIA
J. A. Vaughan
305 7th Avenue

PITTSBURGH
Parke and Jaques
305 7th Avenue

LOUISVILLE
Electrical Sales Co.
Kenyon Bldg.

CHICAGO
Doherty-Hafner Co.
730 W. Monroe St.

BIRMINGHAM
W. H. Beaven
Jefferson Co. Bank Bldg.

HABANA
Arnesto N. Rodriguez
Abreu Bldg.

GET READY FOR A BIG HOLIDAY BUSINESS



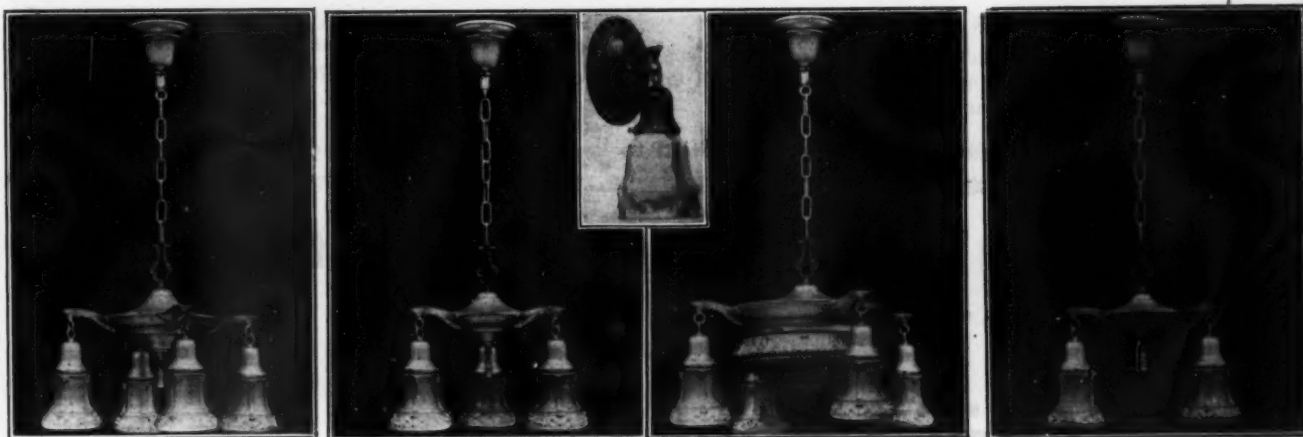
On These GENUINE MAZDA PINE-CONE LAMP
CHRISTMAS TREE OUTFITS
Every Lamp Guaranteed

8-Light Series Sets, in Holly Box
Complete outfits for house current... **\$ 1.70**

Strings only, per hundred..... **\$48.50**

FIRST-CLASS OUTFITS AT AMAZINGLY LOW PRICES

A GOOD SET OF FIXTURES AT A REMARKABLY LOW PRICE



Our Number Six Set is designed to give the dealer a line which can be sold at a reasonable price but which is nevertheless made of the best materials and with the best possible finish. All our fixtures have heavy cast brass arms and, except for the chain, are made of brass throughout.

5 Piece Set **\$12.95** In lots of 12 sets or over... **\$12.35**

Our plated French Grey finish is unequalled for beauty and durability—no extra charge.

INDIVIDUAL PRICES

1 Light Bracket.....	\$.75
2-light Chamber	2.25
3-light Library	2.75
4-light Parlor	3.75
4 x 1 Dining Room	4.25

BARE, PACKED ONE IN A CARTON.
FINISHED IN BROWNTONE, JAP GOLD
OR FRENCH GRAY

If you will write us your needs on any other styles of fixtures or fixture parts, we will be glad to send you illustrations and prices.

We also carry a complete line of standard electrical material and brass goods, on which we would be glad to quote you our lowest prices.

WEINHOFF TRADING CORPORATION

458 BROADWAY

NEW YORK CITY

THE RESOLUTION

Whereas, There is need of words to designate our business and activities; and

Whereas, It is proper that we should deliberately add to our vocabulary such properly derived words as are required; now therefore, be it

Resolved, That the following words be adopted as recognized by us with the meanings attached: (See opposite).

FARQUSON JOHNSON
Editor and General Manager

NATIONAL ELECTRAGIST

FORMERLY ELECTRICAL CONTRACTOR-DEALER

(Trade Mark)

The Official Journal Published Monthly by the National
Association of Electrical Contractors and Dealers

Radio Service Supplement Last Section

THE NEW WORDS

Electragist—Name of the trade or business of Electrical Contractor-Dealer.

Electragist—A person conducting such a business.

Electragician—A person working at the business.

Electragize—A verb—to work at the business—or to provide electrical equipment.

Electragic—An adjective—relating to the business.

Electragian.

Electragial.

JAY S. TUTHILL,
News Editor

Volume 21

OCTOBER, 1922

Number 12

TO OUR READERS

All matter for publication must be in the hands of the Editor by the 10th of the month preceding publication.

All changes in our mailing list should be received by us two weeks prior to date of publication of the issue with which the change is to take effect.

TO OUR ADVERTISERS

Changes in advertisements and all advertising copy should reach our office not later than the TENTH OF THE MONTH previous to the date of issue.

SUBSCRIPTION RATES

One Year, Domestic.....\$2.00
Foreign Subscriptions, including Canada, per year.....\$2.50
Single Copies.....20 cents

Copyright, 1921, by The National Association of
Electrical Contractors and Dealers.

Entered as second-class matter September 1, 1919, at the Post Office
at Utica, New York, under the act of March 3, 1879.

PUBLICATION OFFICE:

11 Liberty Street, Utica, N. Y.

Editorial and Business Office:

15 West 37th Street, New York City

Table of Contents and Advertising Index Next to Last Page Preceding Radio Service Supplement

This Label—



on an incandescent lamp represents the highest
quality that experienced skill and pride in achieve-
ment can put into it.



NILCO LAMP WORKS, Inc.
EMPORIUM, PENNSYLVANIA



ELECTRAGISTS

Welcome *to Cincinnati!*

A-A Wire Company

General Electric Company

Home Devices Corporation

Johns-Manville, Inc.

Midwest Metal Products Company

National Carbon Company

Nilco Lamp Works

Scientific Engineering Association

Square D Company

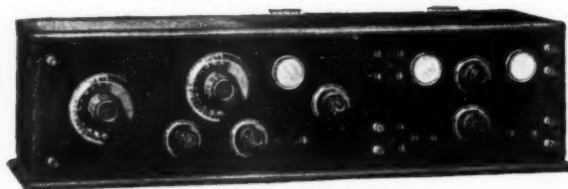
United Radio Laboratories

Weinhoff Trading Company

Workrite Manufacturing Company

URADIOLA

RADIO FREQUENCY TYPE RECEIVER

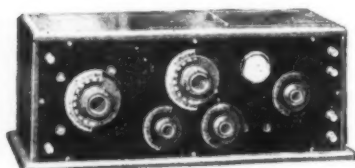
**SERIES BR 2**

One step Radio Frequency, Detector, Tuner and Two Step Amplifier, all contained in a beautifully finished solid Mahogany Cabinet. **List price, \$120.00.**

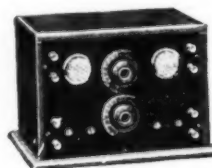
URADIOLA RADIO FREQUENCY RECEIVERS actually bring in ALL the broadcasting stations within a range of 600 miles even under unfavorable weather conditions, on a loop antenna consisting of 18 feet of wire. Stations within a 20-mile range are heard with great signal strength and clearness WITHOUT ground or antenna connections.

Test these sets for Home use

No outside wires. No Underwriters' requirements to comply with. URADIOLA Receiving Sets are composed of one step Radio Frequency Amplification, Detector and two steps of Audio Frequency amplification which bring in signals and programs with sufficient volume to fill a large room. The circuit is perfectly balanced and is easily tuned by any novice. Stations are brought in or tuned out at the will of the operator.

**SERIES AR 1**

Combination Radio Frequency Amplifier, Tuner and Detector in a hand rubbed Mahogany cabinet. Brings in the far distant programs with clearness and volume. **List price, \$60.00.**

**TWO STEP AMPLIFIER**

Two steps of Audio Frequency Amplification which may be used with any detector unit. Amplifies signals approximately 100 times without distortion or howling. Solid Mahogany cabinet with furniture finish; **List price, \$50.00.**

Jobbers and Dealers: Order a Set now for test, you will be surprised. Our discounts are right, too.

UNITED RADIO LABORATORIES

(Incorporated)

"ENGINEERED RADIO"

411 East Pearl Street

Cincinnati, Ohio

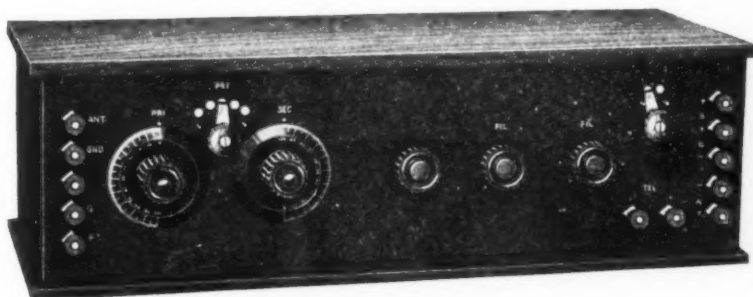
"The World Do Move"

and regardless of the pessimistic talk of short sighted people, Radio Frequency amplification will accomplish more than any other method of increasing signal strength.

*GREATER distance. CLEARER signals.
NON-INFRINGING.*

Radiovox Senior 2

is designed for outdoor or indoor antenna and will bring stations you never heard before. Static and interfering stations reduced 50 to 75 per cent.



Patents Pending

Price \$150; worth more

Many other styles to select from

Our **"BETTER RADIO"** Motto

Scientific Engineering Association

Department B

817 Main Street

Cincinnati, Ohio

Announcing
The New

WORKRITE CONCERTOLAS

"THEY SPEAK FOR THEMSELVES"



WORKRITE
CONCERTOLA, JR.

Here they are—Two Loud Speakers perfected until they are worthy of the name "Workrite." Hundreds of thousands of Radio fans who have used Workrite Radio Products know that "Workrite" means perfection.

Except for the phone units, THERE IS NOT THE SLIGHTEST METAL IN EITHER THE WORKRITE CONCERTOLA, JR. OR SR. The sound chambers are made from our specially developed material, which reproduces voice or music in a clear loud tone without the slightest distortion.

IMPORTANT! The best sound amplifier will not get good results with the ordinary head phone. Workrite Concertolas are made with a special 5000 ohm phone unit, developed for use in these instruments and not sold separate from them.

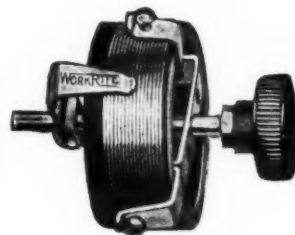
The Workrite Concertola Senior is built from numerous plies of the finest mahogany, oil rubbed and finished exactly like your piano. It will harmonize with your furniture.

Try a Workrite Concertola side by side with ANY other loud speaker.

Workrite Concertola Junior, \$12. Workrite Concertola Senior, \$24.

Workrite Super Vernier Rheostat

Here is a REAL Rheostat—something entirely new and different and very much needed. Indispensable on the detector tube when working long distance concerts or code. Indistinct or mushy music can be brought out clear and loud by tuning with this Rheostat. Pushing the knob way in turns off bulb. Quick adjustment anywhere between $6\frac{1}{2}$ ohms and zero, or by turning the knob you can get 50,000 different adjustments. All metal fittings made from brass and nicked. Our special resistance wire is non-corrosive, and does not change in resistance through change in temperature. Positively never gets hot. Screws for mounting on panel furnished. Price, \$1.50.



Patent Applied For.

Send for Catalogue of our Complete Line and Liberal Discounts.

THE WORKRITE MFG. CO.

5533 Euclid Avenue, Cleveland, Ohio
(Branch Office, 2204 Michigan Avenue, Chicago)



Notice the
Lath Holders

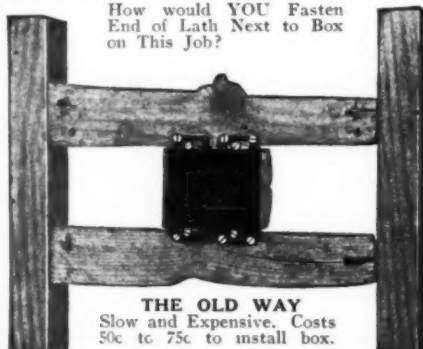
THE NEW WAY
Patented
Fast and Cheap. Costs 10c
plus 5 minutes' time to in-
stall box.



OVER 200 Jobbers are now selling Kruse Switch Box Supporting Strips and Lath Holders. WHY? Because a large number of Contractors and Dealers have become wise to the fact that they can save a lot of time and money by their use, and they are taking advantage of it. If you are not using them then you are giving your competitor an undue advantage of you, as he is doing better work and making more money on each job.

Sales are running around 100,000 sets per month. This means the contractors are making an extra profit of \$50,000 per month by the use of this great time and labor saving invention. Are YOU getting YOUR part of this?

**MIDWEST
METAL
PRODUCTS
COMPANY**
Muncie,
Indiana



How would YOU Fasten
End of Lath Next to Box
on This Job?

THE OLD WAY
Slow and Expensive. Costs
50c to 75c to install box.

Occupies no
floor space.

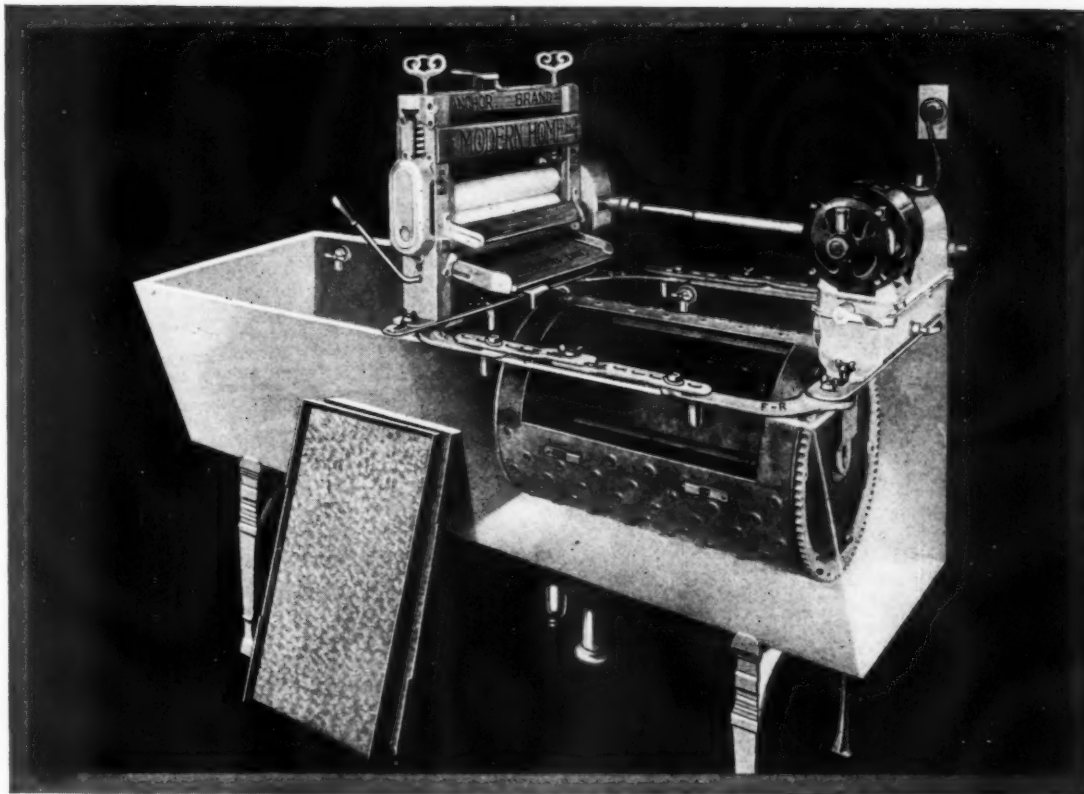
No carrying
of water.

Stores in
the tub.

Does a week's
washing for
2c worth of
electricity.

Capacity:—
Six large
sheets every
ten minutes.

Get
These
New
Profits



Here is Your Chance to Sell a Clothes Washer that Stands Alone

WHY sell clothes washers in a highly competitive market when you can sell the *Modern Home Washer* which is practically without competition?

Modern Home Washer Dealers have been so highly successful that we are now enlarging our distributing facilities. We want to hear from you men who know how to sell quality clothes washers and who recognize the value of handling a clothes washer that requires *no service*.

Selling experience has amply demonstrated that the *Modern Home Washer* is the logical and ultimate type of clothes washer. Every American home has set laundry tubs. A perfected clothes washer such as the *Modern Home Washer* which utilizes these, has immense sales advantages over the ordinary type of cabinet or portable tub washer. It saves carrying water and the usual troubles of drawing and cleaning. It is more useful—hence more easily salable.

MODERN HOME
WASHER
FITS ANY TUB

No matter what clothes washers you are now handling there are new profits for you in the *Modern Home Washer's* clean cut appeal. Here is a clothes washer that is different—non-competitive—and on which we are now prepared to guarantee exclusive profits—Write us for full particulars today.

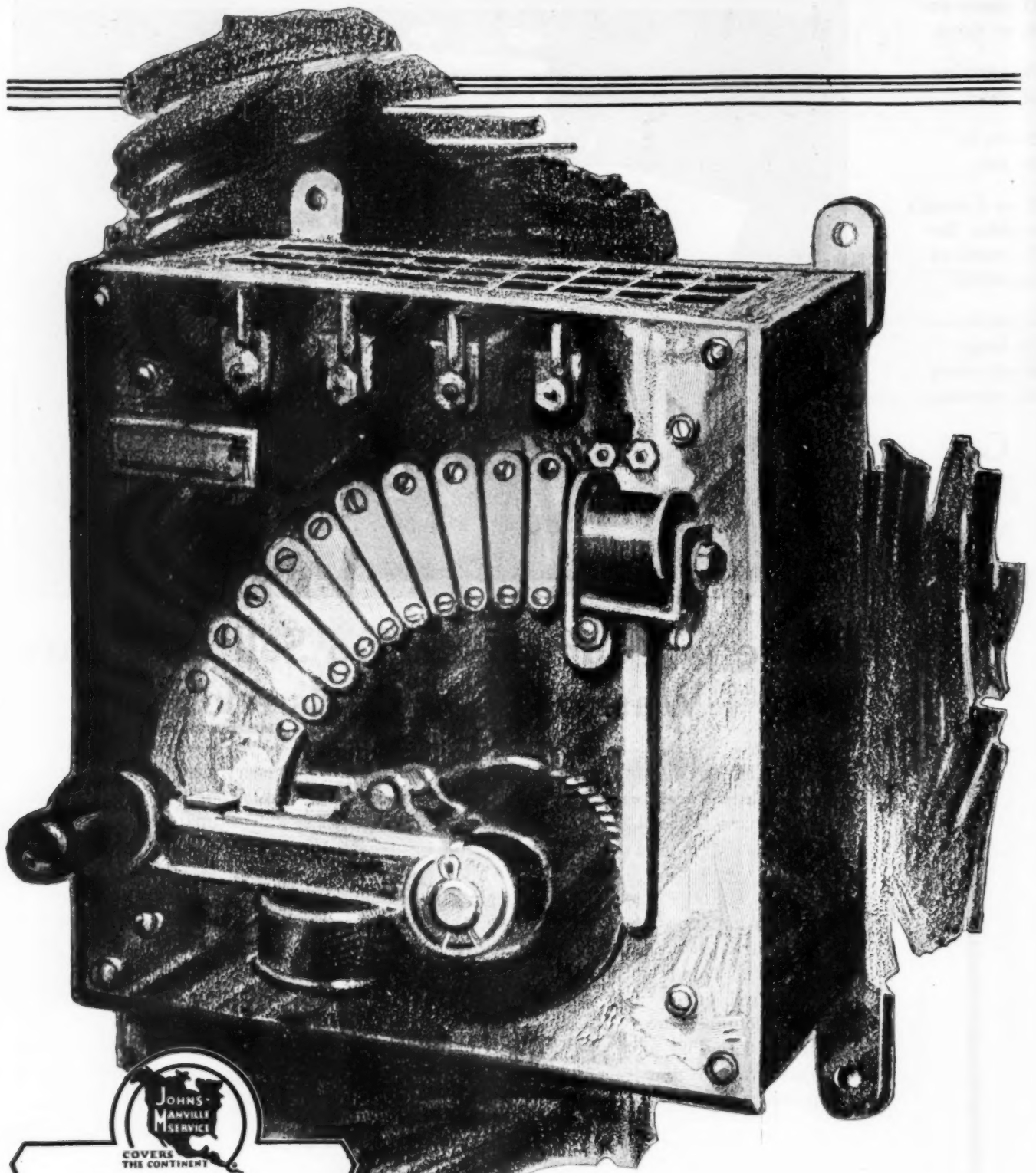
Home Devices Corporation

Main Office and Showrooms

11 East 42nd St., New York, near Grand Central Terminal

Telephones—Murray Hill 9343-9344.





Through—
**Electrical
Materials**
FOR
Utilities
Jobber
Contractor
AND
Dealer

JOHNS-

*For instance
Rheostat faces*

Ebony Asbestos Wood

IT is now conceded that slate and similar substances leave much to be desired as insulating base materials.

For in appearance, workability, dielectric strength and uniformity, Ebony Asbestos Wood has proven far superior.

JOHNS-MANVILLE Inc., Madison Ave., at 41st St., New York City
Branches in 56 Large Cities

For Canada: CANADIAN JOHNS-MANVILLE CO., Ltd., Toronto

MANVILLE

STANDARDIZATION



Square D Standardized Switches in El Paso, Texas—Installation by Pass City Electric Co.

"There is a Square D Standardized Type to meet every Standardization Ruling."



There is a great national movement to standardize meter test service switches—to adopt for service, switches of standardized dimensions and with end walls and fittings interchangeable.

The Square D Company has built and shipped thousands of Standardized Type Switches for use in every section of the country where this standardization has been adopted.

The fact that they can be assured of that dependability, always associated with Square D Products, has influenced contractors in all sections to specify Square D when they are ordering their Standardized Switch requirements.

Although built of exact dimensions to fit into the standardization idea, the Square D Switch has exclusive features of design which affect durability, convenience in operation, and installation.

They can be supplied in two and three pole, 30, 60 and 100 ampere sizes.

Square D Standardized Switches and Fittings may be had at your jobbers—or just communicate with our nearest office.

SALES OFFICES:

SQUARE D COMPANY, DETROIT, MICHIGAN
PERU, INDIANA

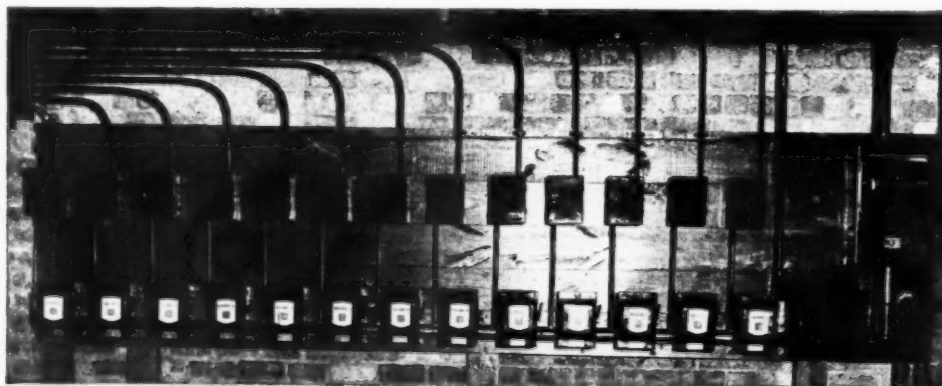
WALKERVILLE, ONTARIO

Boston
Buffalo
Chicago

New York
Pittsburgh
St. Louis
Toronto

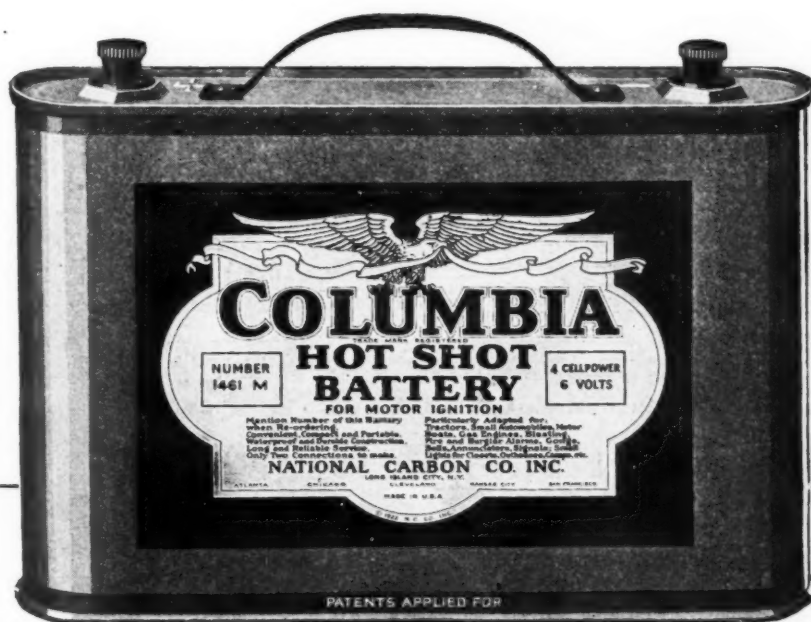
Philadelphia
Cincinnati
Milwaukee
Montreal

Atlanta
Cleveland
San Francisco



Square D Standardized Switches in Canton, Ohio—Installation by Eclipse Electric Co.

—the greatest step forward in the battery industry since the invention of the original Columbia "Hot Shot"



ANNOUNCING the NEW COLUMBIA STEEL CASE "HOT SHOT" BATTERY

A sensational improvement in an ignition battery for gas engines, tractors, motor boats, and non-self-starting Ford cars—

Super-Durable—constructed to withstand the roughest service

Waterproof—unaffected by exposure to the elements

Unbreakable—full service and life assured through protection of the battery by the steel case

➔ *Costs No More Than Fiber Case Batteries* to trade and consumer

Steel Case "Hot Shot" No. 1461 is universally popular for ignition. It is the first size we are making in the steel case. Other standard sizes of Columbia "Hot Shot" Batteries will be made in the steel case as fast as practicable.

Your jobber will take care of your orders as usual

NATIONAL CARBON COMPANY, INC.
Long Island City, N. Y.

Atlanta

Chicago

Cleveland

Kansas City

San Francisco

Columbia
Dry Batteries
—they last longer

Sell Your Home Lighting Market

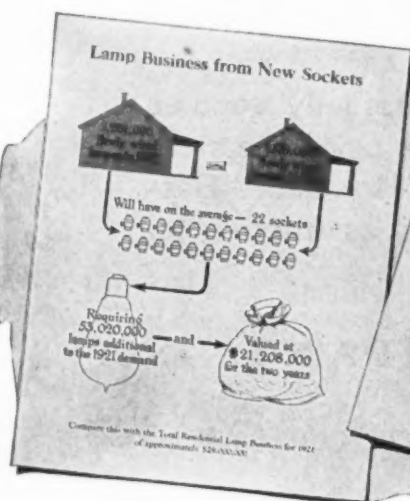
THE home lighting field presents unusual sales possibilities at the present time. Half of the 9,000,000 wired homes in the United States are poorly lighted and many homes are now being wired for the first time.

Anticipating these exceptional opportunities in the home lighting field, the advertising of National MAZDA Lamps has repeatedly emphasized the value of better home lighting throughout the entire year.

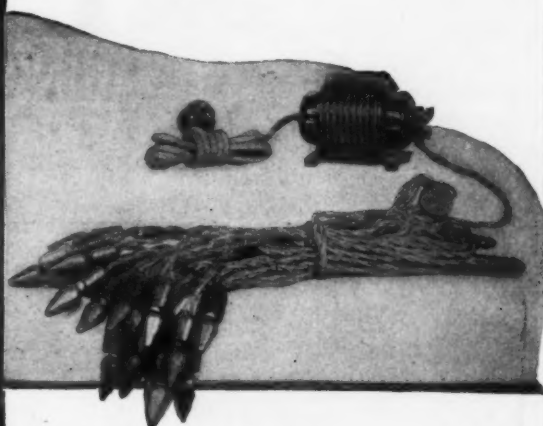
These splendid lighting business opportunities are being capitalized. On October 1st, National MAZDA lamp agents begin the "Lamp the Home" Contest, which will undoubtedly prove to be the biggest contest of its kind ever conducted.

To help the National MAZDA lamp agent reap the greatest benefits from the home lighting field, a "Lamp the Home" Campaign prospectus has been prepared. This prospectus tells how to cash in on a big and rapidly expanding market. It gives all the essential facts concerning the home lighting field and forecasts the immediate future of the home lighting business. A careful study of this valuable book will make you an authority on the home lighting field.

But the prospectus does not stop with merely telling everything worth knowing about the home lighting field. It goes still further and tells *how to actually get the business*. If you are a "Lamp the Home" contestant and have not yet carefully studied your prospectus, *do it today*. National Lamp Works of General Electric Company, Nela Park, Cleveland, Ohio.



NATIONAL MAZDA LAMPS



"Christmas comes but once a year"—

And Christmas Cheer offers sales opportunities

With the approach of the holiday season, dealers must consider stocking the goods they will need for Christmas buyers.

G-E Christmas Arborlux (The Combination Toy Transformer and multiple Xmas Tree Lighting Set)

will be a popular seller this year. Magazine advertising appearing in the December magazines which are issued the middle of November will contain Arborlux advertising to the extent of over a million and a half copies. This will be supported by window display suggestions and other dealer helps.

Sell "the light that never fails"—address any G-E distributor or Merchandise Dept., General Electric Co., Bridgeport, Conn.



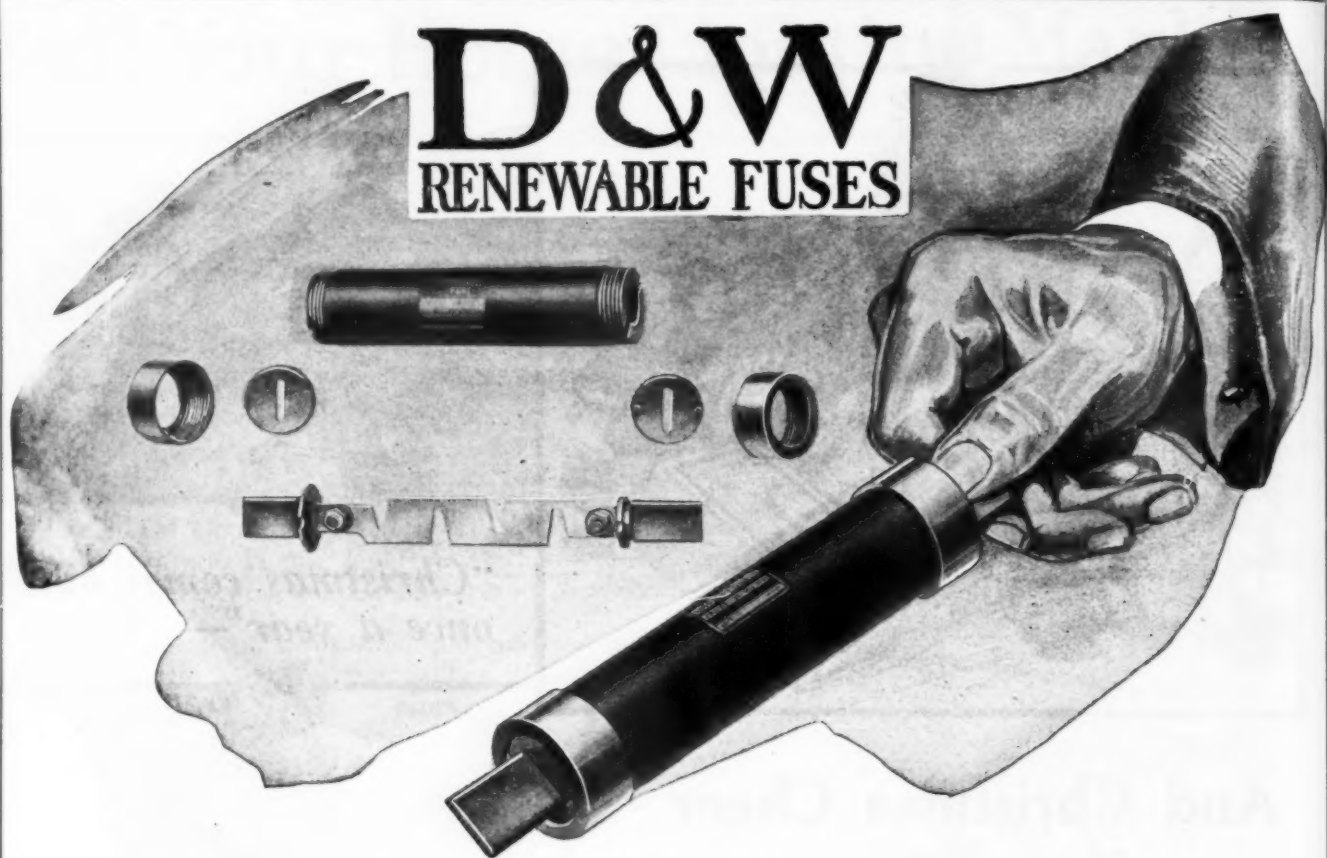
General Electric

General Office
Schenectady, N.Y.

Company

Sales Offices in
all large cities

33A-129



Here is the Improved D & W Renewable Fuse

D & W engineers have made a renewable fuse equal in every respect to the well-known Standard D & W Fuse. It is approved by the Underwriters' Laboratories and is made in Standard capacities up to and including 600 amps. at 600 volts.

The links and cases of D & W Renewable Fuses are interchangeable with those of other manufacturers.

On installations where the percentage of blow-outs is high D & W Renewable Fuses are saving time and money for users of electric current. The

simple, sturdy construction of these fuses, their ease of refilling and accurate rating have brought them nation-wide popularity.

First quality fibre tubes assure resistance to the pressure of short-circuit blow-outs. Metal parts are carefully machined for maximum strength and perfect fit, while special treatment prevents engaging parts from freezing. Vents around threads give positive ventilation. The quality and accuracy of D & W Fuses make them.

A Standard for Comparison



Fuse Division
of General Electric Company
Bridgeport Connecticut

DWF-43



*Peep into any average
home of an evening—*



© "Fairchild Aerial Camera Corp."

Cities, Towns and Villages— Full of Readers

There are few indeed, nowadays, who do not read some magazine. The three magazines illustrated at the left go into nearly two million homes where they are read by upwards of eight million people.

And these people, all of the average substantial "homey" type to whom these magazines appeal, are seeing each month a General Electric advertisement that tells them the story of "The Home of a Hundred Comforts"—a story that is building business for electrical contractor dealers.

Also, there are other magazines and other forms of selling aid, to help contractors get business this fall. The nearest G-E distributor will tell you about them or you can address Merchandise Dept., General Electric Co., Bridgeport, Conn.



General Electric Company

General Office
Schenectady, N.Y.

Sales Offices in
all large cities

Featuring



A-A RED (INTERMEDIATE)

A special rubber compound designed for high-grade engineering installations where long life and continuity of service are required.

This product is the result of years of research and experiment on the part of our engineers and is under their direct supervision throughout its manufacture.

Insulation and braid are redinsuring a wire easily identified both before and after installation.

TYPICAL INSTALLATIONS A-A RED EXCLUSIVELY:

Federal Reserve Bank
Meyer, Strong & Jones, Engr. York & Sawyer, Arch.
New York City

Bowery Savings Bank
Frank Sutton, Engr. York & Sawyer, Arch.
New York City

Studebaker Plant
Clyde R. Place, Engr. Owner—Arch.
South Bend, Ind.

General Motors Plant
Owner—Engr. Owner—Engr.
St. Louis, Mo.

Humble Oil Building
Clinton & Russell, Engr. Clinton & Russell, Arch.
Houston, Texas

Normal Training School
Board of Education, Engr. G. B. Houseman, Arch.
Cleveland, Ohio

Plaza Hotel Addition
Warren & Wetmore, Engr. Warren & Wetmore, Arch.
New York City

Los Angeles Biltmore Hotel
Clyde R. Place, Engr. Schultze & Weaver, Arch.
Los Angeles, Calif.

A-A WIRE CO., Inc.

Branch Office
Cleveland, Ohio

50 EAST FORTY-SECOND ST.
NEW YORK

Factory
Newark, N. J.

A-A N.E.C.

A-A. RED

A-A 30%

THE RESOLUTION

Whereas, There is need of words to designate our business and activities; and

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Electragian.

Electragial.

Volume 21

OCTOBER, 1922

Number 12

Last Convention Call

The twenty-second annual convention of the National Association of Electrical Contractors and Dealers is now upon us. October is the month, Cincinnati is the place, and Wednesday, Thursday and Friday, the 11th, 12th, and 13th, are the days of the general sessions.

Important topics are to be taken up at this convention, among them being the change of the organization's title. Within the past year or two Canada has added a large list to the membership rolls. While the interests of Canadian electragists are practically the same as those on this side of the border, yet for obvious reasons there are objections to the word National, hence it is deemed advisable to use a term of broader scope. Perhaps the title, Association of International Electragists, might be acceptable to all parties concerned. It is offered merely as a suggestion.

With an aim for further betterment of the organization, other amendments to the Constitution are proposed. One of them reduces the geographical area of Divisions, with a view to coming into closer personal contact with the membership, which should work to the good of all; another amendment sanctions the formation of two groups within the association, to which all questions of labor will be referred, which would result in removing a bone of contention from conventions.

The Cincinnati convention bids fair to be largely attended, and members and guests who have not yet made reservations should do so at once. The railroads have granted reduced rates and the time of year is most suitable for contractor-dealers to attend. Cincinnati is already and waiting. So pack up your troubles in your old kit bag and join the crowd.

The League Conference

The conference of electrical league and club officials at Association Island last month should be productive of great good to the electrical industry—everlasting good if those sponsoring the business development movement will gather into concrete form the wealth of information brought out at the conference and place it where it will develop results.

The conference was called for the purpose of showing what the established local leagues are accomplishing for the good of the industry. It fulfilled its purpose. It con-

clusively proved that a properly conducted local organization accomplishes most gratifying results. Detailed evidence to this effect was produced.

Some means should be immediately developed to analyze all of these facts and schedule them so that they may be available to all localities. The various branches of the electrical industry in all sections of the United States and Canada are anxious to know how to organize, how to harmonize, how to finance their projects, how to conduct their campaigns, how to operate local movements. *HOW TO* is the question.

Experiences related at the conference told how to start and how to proceed—and such information should be forthcoming at once in a simple form that would permit local groups to instantly establish themselves.

If the conference proved that local leagues are successful, then we need more of them. Let us all know how to organize them and how to operate them. No time should be lost in supplying the information.

Get Out and Go After It

The fellow who looked for a business boom this year and did not get it did not know what to look for as the best thing that could happen to him. Booms are never good for general business, for booms like balloons go up, but they break and eventually must come down.

The best thing that could possibly happen has happened. Business has gradually picked up. In some spots to be sure it has been slow perhaps, but it *has* picked up. Slow but steady, and that means to stay. Booms do not stay.

The greatest and biggest pickup has been made by the men who have gone after what business there was without complaining, and those who are still groaning and moaning are the ones who sat around waiting for the boom and for business to come to them.

There is not a reliable report coming in that is not cheerfully optimistic because of the general improvement in trade. If you scoff at that get up and look at yourself to find out what is wrong that you are not on the upgrade of steady improvement. Somebody has been, and still is, out after the business that you have missed and that you feel should rightfully have come your way. Somebody has, is, and will get it if you do not get out and go after it yourself.

The public had not gone into a cocoon like the caterpillar to wait for warmer and brighter times. You who are

grumbling are the ones who have done that thing. The public is out eating—clothing itself—seeking amusement—which all means spending of money—not burying it. It is striving to forget the years of suppression and depression. The new generation cannot be made to stop growing. It is not possible to suppress their desires or requirements. Things are being manufactured and consumed, for as often has been said, the world do move. Are you one of the movers getting your share of trade, or are you like the old lady who, when the automobile starts to turn the corner, grips hard on the arm and leans the other way to keep the thing from turning over?

Business may skid a little but it is far from a spill. Everybody wants to sit up straight—equalize the weight and do his or her best to keep the machine going on the road to success. That way may narrow for a little distance or it may have a few curves in it; nevertheless it is a free for all highway and the satisfaction of reaching the destination is worth all the endurance it may take to make the run.

Nobody who seriously considers future conditions wants a boom, but everybody wants action that will prove continuous and that will bring about a proper ratio of expansion. Go out yourself for a little everyday better business. Look to the internal part of your organization, see what may be wrong with any department whose functions are performing only fitfully. Then look to the externals—look to the outside sales force—look to your advertising, and business will intensify its look to you.

Gambling in Business

An irate correspondent writes that he is going to get out of the electrical contracting business because it is too much of a gambling business. He says the last straw that broke his camel's back was when he put in an honest bid of twelve thousand dollars on a certain job and it went to the low bidder at sixty-five hundred dollars.

That is bad enough, but there have been worse things happen, as every competitive bidder knows—not only in electrical contracting, but in all construction contracting, as well as in garbage contracting.

There are all kinds of contracting and all kinds of contractors. Perhaps some of those in the electrical business are gamblers. But as the dissatisfied wife said to the judge when she applied for a divorce, she did not wish to live with a man that could not drink and could not gamble. When the judge commended the husband and said she was fortunate to have such a man, she declared that she was sick of it, for the husband persisted in trying to drink and gamble and as a result he was always drunk and broke, as he could not do either.

Can any man in any line succeed if he makes his business a mere gambling game? How far can he go toward success? Gambling is risking money on a contingency. In a game of chance it may be as fair for one as it is for others. But in electrical contracting, somebody must pay for material and labor. Whoever pays is forced to do so through trickery. Such unfair and dishonest practices have no place in any business.

However, if one were to make a careful survey of all industries, doubtless there would be found less dishonesty in the electrical industry than in many of the others. The reason is plain—only the best materials assure the best

results in all electrical installation. Dishonesty coupled with inferior materials expose themselves in electrical work because they fail to accomplish their purpose.

So also is the gambler in business exposed. The public is not to be hoodwinked forever. The man who is tricked into paying more than his bid calls for eventually discovers the dark hued gentleman in the woodpile. Then he seeks the honest bidder and henceforth is done with gamblers in business.

Standardize Trade Terms

We have long used the terms productive and nonproductive labor. We have disputed or agreed, as the case may have been according to our lights and customs, as to whether accounting costs, freight and other transportation charges, should be added to overhead or to cost charges. Perhaps it is looking to the millenium to hope that the latter subject may come into its own by a standardization of method. But there easily could and should be a standardization of terms.

Latterly it has been noticed frequently that instead of using productive and nonproductive labor, the terms productive and indirect labor are coming into use. Indirect labor appears to be so much more consistent in conveying the meaning intended.

It therefore seems timely to suggest that to avoid certain confusion it would be far simpler to adopt the terms direct and indirect labor and thus bring into general use another help toward lessening business complexity.

All simplifications of words or terms which build for distinct clarity of meaning must of necessity make accounting an easier matter. The accounting bugbear has got to be slayed, for business records, and correct figures on past and future business are as essential as actual stock. Indeed today modern business methods constitute not a small part of a merchant's stock in trade. He must know just where he stands every minute and have it all on paper before he can have the fullest confidence that any transaction he may wish to undertake is perfectly in hand.

Fogyism was always oldfogyism. A willingness to espouse new ideas means new energy instilled. Energy, new or renewed, means to keep young. The moment there is a cessation of the strife to keep young, youth begins to escape. Now is the time to prevent oldfogyism from pushing us even one step along the slippery downward path.

Electrify to Satisfy

The trite old saw to the effect that there are tricks in all trades, has caused the public to look with suspicion upon any transaction involving mechanical labor. Yet as a matter of fact the opportunities for the practice of trickery are far greater in the profession than in the trades.

The services of the architect, the physician, the engineer, or the counselor at law cannot be measured by the public as can the work performed by the electrical contractor-dealer. If the customer is ignorant of the approximate cost of labor and material on a specific job, there are definite channels through which this information can be procured with little effort.

But that trickery is practiced in the mechanical trades

cannot be denied. This is accomplished through the use of inferior materials; through the employment of incompetent workmen; and through substitution in various stages of the work, as regards both labor and material.

There now is a movement on foot to Electrify America. The sponsors, officially known as the Joint Committee on Business Development, take in every branch of the electrical industry. The contractor-dealer branch—now known as electragists—will go to the public in this great movement backed by the manufacturer, the supply jobber, the central station, and all other electrical interests; and so he must proceed with clean methods and honest motives; he must make it clearly understood that he will Electrify to Satisfy.

In accordance with the true meaning of the term, the electragist will supply the public with that which it expects and deserves: An assurance of safety—a sense of security—satisfactory service. With the backing of honest manufacturers and honorable methods all along the line in this worthy movement, the electragist will be enabled to break down that old feeling of suspicion which has so long

existed in the minds of the public toward the mechanical trades.

The genuine electragist does not sell mere electrification. He does not sell wiring with its appurtenances; nor does he sell devices and appliances; but he does sell that which in the past has seemed to be so rare in the construction field: Honest Service. That is what the public pays for and nothing short of that will satisfy the public.

Here then is an opportunity for the electragist to demonstrate to other branches of the electrical industry the correct meaning of his new title. Neither the manufacturer nor the supply jobber can reach the public direct; the central station meets the public in an entirely different capacity; so the electragist is the logical source of direct contact with the public. He must take advantage of this opportunity.

The business development movement is now well under way. As it advances it will increase in strength—it will grow in popularity. The electragist must be a vital part of it. It is up to him to assure the public that he can be depended upon. He must Electrify to Satisfy.

Rhode Island Opens Its First Electric Home

From Returns Already Noted Month's Exhibition Will Probably Prove Unusually Profitable

From September 11 to October 7 the first Electric Home opened under the auspices of the Rhode Island Electrical League will be open to the public. The house has been loaned to the League by Marshall B. Maritn, a builder of Providence. The house was furnished by the Tilden-Thurber Company, the coöperative advertising is being directed by the Geo. Danielson & Son advertising agency, and the electrical devices shown are supplied by the members of the league. Each league member signified the devices he was willing to supply. Then in the case of each device the names of those members willing to supply it were put in a hat and one name drawn. This appeared to be the only way to decide fairly between the members.

This home promises to be one of the biggest things that has ever been done in Rhode Island to bring the contractor-dealers together and to stimulate interest among the public in things electrical. Everything possible has been done to bring it to the attention of the public.

Arrows on electric light poles direct people to the home. The local central station mailed 35,000 invitations to its consumers. The solicitors for house wiring personally presented invitations and throughout the period the home is open will continue to present personal invitations to all prospects for house

wiring. All the members are also distributing invitations to visit the home.

Tie In Displays

All the members with the opening of the home who had good windows made special electric home window displays. In these windows were displayed posters and these posters were also used on the wind shields of the cars used by the members.

Each member of the league was supplied in advance with a rubber stamp, reading: "Visit the Electrical Home, 267 Elm Grove Avenue, September 11-October 7, 1-10 P. M." This stamp has been used for stamping bundles, envelopes and letters.

A week in advance the advertising managers of the local newspapers were informed of the plans. It was explained to them that the league would take a quarter page itself and the coöperation of these advertising managers was secured in getting enough advertising matter to fill or more than fill the page.

A new feature in connection with this home is the broadcasting of a specially written story about it from the local broadcasting station operated by the Shepard Stores, a local department store. This story was written with the view of making the broadcasting as perfect as possible. It is very difficult for the broadcaster to enunciate "S" and similar sounds in such a way as to

make them plain at the receiving end, so in writing this story just as many of these sounds as possible were eliminated, especially in the first part of the story. The story used follows:

Electric Home Message Broadcasted

"When Doctor Alexander Graham Bell died, we were reminded of the fact of practically every application of electricity with which we are now familiar, having been made during the life time of one man. Dr. Bell had grown to manhood before he developed the telephone. From the beginning, made by him, even greater developments have been made, until today one can talk to people in a distant city with no metallic conductor connecting him with that city.

"Half a century ago, no man foretelling the magical applications of electricity so commonplace today would have been considered in his right mind. Compare the home of your greatgrandfather with the modern home equipped with every electrical convenience, and you begin to comprehend how great the developments in electricity have been.

"In the electric home, the drudgery of Monday has been eliminated. Place the washing in an electrically operated machine, turn on the current and the machine removes every trace of dirt. Other machines will do the ironing. The invisible energy that comes over



So Far There Has Not Been One Dissenting Opinion of the Home. All Agree "It's Wonderful"

the copper conductor makes quick work of all the hard labor formerly connected with Monday.

"Throughout the house electricity can be made to make the home a better place in which to live. To make it more evident that this can be done, a group of electrical men embodying the Rhode Island Electrical League, have equipped a house at 267 Elmgrove Ave., Providence, R. I., with all the modern electrical labor eliminators.

"In the kitchen of this home the dishes are washed, rinsed and dried by electricity. A turn of a handle will bring heat to the oven of the range or under a kettle. The daily call of the ice man is replaced by an electrically operated machine that holds the temperature of the refrigerator at the same degree no matter how hot or how cold the day.

"Food can be cooked right on the dining room table in the electrical home. Receptacles are provided for the connection of a chafing dish, an egg boiler, coffee percolator, grill, waffle iron, or other small cooking appliance.

"In the cooking of many articles of food the pleasing aroma given off in the process is a keen sharpener of the appetite. An eminent scientist has said that the day will come when all food not prepared outside the home will be prepared right on the table where it is eaten. He declares it will taste much better when this is done. It can be done in the electrical home.

What to See in Each Room

"In the bath room of our electric home an electrically heated shaving mug provides the hot water needed for a clean shave. An electric vibrator, if used daily, keeps one looking and feeling young.

"The moment the door of a clothes closet is opened, electricity floods that room with light. No more need to light a match or to fumble around in the dark, looking for that which one desires.

"In the bedroom we find an electric hair drier which creates a soft warm breeze that dries the hair perfectly. The electric heating pad, also found here, drives away little pains like magic. When anyone in the home is ill, one cannot get along without it.

"In the living room, floor and piano lamps are placed where the light is most needed. The phonograph is operated by a tiny electric motor. The radio set enables the family to hear concerts, speeches, and all the other information and entertainment broadcasted through the air.

"Afternoon tea can be prepared and served right in this room. The heat needed is supplied by electricity. The appliances used are an ornament to the room. The freshly prepared lunch has an appetizing appeal that can be gained in no other way.

"The most successful use of all this electricity depends upon providing a way to conduct it to the machines and the appliances. In this home one learns

the best locations of fixtures and receptacles.

"Receptacles are provided for every possible use of electric current. There are enough of them so that all appliances required at one time can be readily connected to the outlets. They are so located that in each case the minimum length of cord is needed.

"This electric home will be open to the public from one o'clock in the afternoon to ten o'clock in the evening, every day except Sundays, from Monday, September eleventh, to Saturday, October seventh. The house is at 267 Elmgrove Ave., Providence, R. I.

"Nothing is for sale. There is no charge for admission. You and all your friends are cordially welcomed by the Rhode Island Electrical League. You may examine everything in the house, ask as many questions as you like and listen to the radio concerts."

Story Sent Out at Regular Intervals

This story was broadcasted on the Friday night before the home was opened and at intervals during the period it was open. It has proved to be a somewhat novel and a quite effective form of publicity.

A local florist contributed flowers to give the home a more complete home like appearance. Demonstrators show the visitors just how to use the appliances.

A booklet has also been provided for distribution among the people visiting the home. This booklet shows a picture of the house, floor plans and the like.

It is still hard to tell whether this electrical home is creating a greater interest among the general public or among the contractor-dealers themselves. Never before has the league done anything that has resulted in bringing in more members and causing them to pay their dues than this has proved to be. It is the first thing that has been engineered by the new secretary, H. E. Dawson, and promises well for the future of the league.

Where the Current Goes

Figures recently compiled show that more than one-third of the homes in the United States are wired for electricity. Of the 21,145,126 homes in this country, 7,636,409 are wired for electric service, while 5,363,531 are not wired but could be connected to existing electric distribution lines. The homes unwired and not yet reached by distribution lines number 8,145,000.

High Principles of the Electragist

An Interview With R. W. Keck Whose Successful Business in Allentown, Pa., Furnished the Basis for This Article

[NOTE.—It was with much persuasion that the interviewer succeeded in gaining Mr. Keck's consent to an article of this kind setting forth only the methods he employs, but it is felt that the telling of his distinctive success by enforcing high standards of practice at all times will help others who perhaps are tempted to lower their principles in order to show a temporary profit under present conditions.—The Editor.]

When Bob Keck of Allentown, Pa., became an electragist he started something that was to be talked about for years to come. Not only were those of life long acquaintance influenced nor those who perhaps just casually knew him, but everybody who had anything to do with electrical contracting and retailing—and who as buyer or seller does not have in these electrical times?—was some day to talk about this something that made little Bob such an outstanding success in the electrical business.

Robert W. Keck is his full name. He does business under his own cognomen with an "& Co." attached and calls his staff en masse The Electrifiers. He's a member of the National Association of Electrical Contractors and Dealers and also chairman of the Pennsylvania State Association of Electragists. And we want to say right here that he's a mighty big asset to the great electrical fraternity as a whole if he never does another thing but install and retail electrical goods.

An Electragist in Principle

We intimated that Keck was always an Electragist. Of course he has been only since the National Association copyrighted this word for the exclusive use of its members. But in *principle* he always was. The day Robert W. Keck set out on his own hook he was a dependable contractor. His resources weren't great nor his jobs big. In fact all the work he could get for a time didn't amount to very much. It seemed that every prospect for convenience outlets wanted only a buzzer installation, and every house reported to be in the market for complete new wiring never needed a thing but a few knobs and tubes. Dark despair loomed up before him but he never gave up for a minute. The principles he had adopted he was determined to adhere to at any cost,

and working on this basis it was not long before R. W.'s weather vane of business began to change for the better.

Then when retailing became a logical part of contracting he entered into this new field with the same guide posts to go by that had piloted him to success in the other and more precarious end of the business. As new and unforeseen problems arose he solved them from the standpoint of high ethical



R. W. Keck

standards, and never once was he made sorry for the taking of such stand.

Here men is the secret of this business—that something that causes people to talk in admiring tones wherever it is found in industry:

Doing business strictly on the quality and service basis—not buying business or contracts on price but working so that customer and seller both get a profit; taking pride in the work, and seeing that satisfaction to the minutest detail goes with every transaction.

That's the test to which every job is put by R. W. Keck & Co., The Electrifiers of Allentown, Pa. And just to show that his methods are as productive in financial returns as they are high principled in nature, when R. W.

was interviewed for this article, he had just pulled down a contract to the tune of—well we won't tell the amount. Suffice it to say that it was big enough to make any ordinary contractor-dealer turn green with envy and even cause a class K member of the National Association to wish he could put such a thing across more than just once in a while.

Keck says: "I have always made it a rule not to try to get all the business in the electrical line, but what business I do get I always insist on a good first class installation for the customer with profit as the second consideration. Ninety-five percent of our installing jobs are taken on a time and material basis or cost plus. In the appliance line of our business we strive to get the best merchandise on the market to sell. We do not handle any of the cheap lines at all. We have never gone into the time payment business to any great extent, and we are not sold on the house to house selling by professional solicitors or factory crews."

What do you think of such rules in conducting a progressive electragist's business? Don't you agree that they are mighty fundamental and underlie almost every transaction? So long as contractors and dealers go on with the mistaken idea of cutting prices, skimping jobs and selling inferior materials, just so long will their business go on the toboggan with but one result sooner or later—utter ruin.

Uplifting the Industry

There can be no uplift in the industry until all these factors are brought to light in their true form and settled in the right way. Coöperation is the keynote, as it always has been and always will be—in any industry, trade or profession. A good many in this branch of the electrical industry have realized this and are now on the right track. But unfortunately there is an apparent dearth of appreciation of these facts on the part of all too many in the business even at the present time.

Keck sensed the situation from the start. His service has always been reliable. He does not knowingly skimp any job, employ unstandardized materials, nor violate the rulings of the National Electrical Code. He is fair

with his competitors, and more than this, he coöperates!

Not every business can be begun on sufficiently large capital to shoot big guns at once, in the opinion of The Electrifier, but many large successful businesses have grown from small beginnings. It is the way you start that counts.

Then, too, Keck is a salesman. If you don't believe it just journey along down his way in eastern Pennsylvania sometime; any day in the week except Sunday or a holiday will do, for this Go Getter is always on the job. The writer is willing to go three to one that he can give you some pointers on selling a hard one that you've never thought of before.

R. W.'s way of selling adequate wiring, for example, is not to quit talking until the prospect has agreed and wants

to provide his house with everything from an electric mouse trap in the cellar to a thoroughly dependable burglar chaser on the roof. He insists on providing through convenience outlets for all devices from a radio outfit and an electric refrigerator to electric cigar lighters, tooth brushes and warming pads. There never was a woman born who could think of more things in a minute than Bob can of electrical needs for a comfortable home.

Harmony in All Branches

The city of Allentown is considered one of the few that has complete harmony among the various branches of the electrical industry, and it is safe to say that the business of The Electrifiers has had something to do with it. Of course there are curbstoners—they are found in any place, city or hamlet—

but they are not so destructive in their underhand methods, for they are being educated to the better understanding of their business and why only high standards will go in that city. Allentowners are sold on real electrical service, and when someone comes along who talks price rather than quality their suspicion is aroused and the chances are ten to one the newcomer gets the razzle dazzle.

Does it pay to have high standards in electrical contracting and retailing? R. W. Keck believes that anybody who has ever figured on either side whether buyer or seller will give you the right answer in short order. And, we add, if you want to see where they have been worked out on the seller's end—to the great advantage of all—visit the The Electrifiers' establishment in Allentown sometime.

How Electragist and Central Station Can Work Together to Advantage

By F. D. PEMBLETON

Some New Ideas Are Set Forth in This Paper Presented at the Sales Managers' Convention Recently Held at Association Island, N. Y.

Coöperative relations are economic.

They should be eased and made pleasant by the spirit of good fellowship and sympathetic understanding, but they will endure and be productive of good results only to the degree that they are based upon the economic laws that govern the practical management and building of the industry.

Then the relations are most apt to be harmonious because they will be just.

Each branch of the industry will be free to function and receive its full reward unhampered by any other branch, but aided by all other branches.

They will have an incentive for joint action, to operate together for a common object—the building of a greater industry which shall provide the public with a broad, complete service that promotes better living conditions for all classes of people.

The Central Station

The central station is the foundation of the industry.

Inasmuch as it is the function of the central station to generate and distribute current at the lowest cost to the consumer that will permit of a fair profit to the company, and

—as the nature of the business and the economic laws governing it indicate the lowest cost to the user when the company is permitted to operate on a non-competitive basis.

—it is broadly speaking advantageous to all connected with the industry and to the public that all branches of the industry work to promote the company's interest and help develop the plan of having all power supplied from one central source.

This is particularly true at this time as we enter an era of supergenerating stations and interstate distribution systems.

In the scheme of coöperative work of Electrifying America by developing the universal use of electricity in home, office and factory, and to promote the plan of central sources of supply, the burden of responsibility which rests upon the central station more than upon any other branch of the industry is that of

—educating the public regarding the uses of electricity to create an universal demand for light, power and appliances;

—educating the public and contractors regarding the proper methods of lighting, convenience of outlets and switch-control;

—maintaining methods of dealing with the public and with contractors that facilitate prompt inspections and installation of service;

—community promotion work, alone if necessary, but preferably in concert with civic bodies, to develop the industrial and commercial possibilities of the territory.

Central stations and other branches of the industry have worked along these lines until the industry now has been developed to a degree that permits every manufacturer, jobber, contractor and dealer to *profitably* use the standard methods of selling and advertising to promote his individual business.

It is no longer necessary for the central station to assume a paternal position and the responsibilities that economically belong to other branches of the industry; but the industry will thrive better if the central station maintains a big, broadguaged leadership in development work.

It is now uneconomic for the central station to subsidize any other branch of the industry; but the central station should always lead in a spirit of hearty, generous coöperation.

To some it may seem advisable to attempt to standardize a schedule of methods which central stations might adopt in coöperating with other branches of the industry, but even a brief analysis will show that methods must vary according to the size of the territory

and it is hardly to be expected that executives scattered throughout the country will agree upon the details of a fixed schedule of methods.

However, the fundamental laws of economics which underlie all of the really sound, constructive methods of building the industry are applicable everywhere, and an unprejudiced study of the economic relations of the various branches of the industry will clearly show

- that central stations should have the support of the entire industry in promoting central sources of supply of electrical energy;
- that the central station should assume the greater share of the burden of educational publicity to create an universal demand for electric service and electric appliances;
- that the central station should cooperate with the state department of labor in standardizing its lighting code and securing its adoption by the manufacturers;
- that central stations should cooperate with other branches of the industry to promote lighting campaigns or exhibits;
- that the contractors should be unhampered by competition of central stations in the installation of wiring and the sale of motors;
- that all central stations should employ one or more technically trained lighting men to act in a consulting capacity with contractors;
- that central stations should employ one or more technically trained power engineers to consult with customer and contractor on the installation of power and motor application;
- that all central stations which sell appliances should maintain advertised selling prices (except in special sales) and use only such modern merchandising methods as permit all appliance dealers (of any kind) to compete on a fair basis;
- that in every community there should be an association of all branches of the industry with working committees for the purpose of securing positive cooperation of all on each phase of the work;
- that the lines of demarcation between the different branches of the industry should be clearly defined and closely adhered to.

The Contractor

The installation of wiring in old and new buildings and the sale and installation of motors should be the work of the contractor exclusively.

In the pioneer period of the industry when there were comparatively few competent wiring contractors, it may have been necessary and economical for central stations to maintain departments which installed wiring and motors.

Such departments are unnecessary today.

The activities of contractors in wiring old residences makes even this work unnecessary to central stations.

While the idea of having a department wire old houses on easy payments promises bigger returns the increased business does not warrant the difficulties

involved and the losses sustained in other ways.

So the central station and all other branches of the industry should cooperate with the contractor in helping him build his business.

The central station will then have the assistance of a large force of boosters engaged in developing a greater demand for central station service; a corps of goodwill builders for the company; the manufacturer will have an active agent for motors and the jobber an outlet for wire and supplies.

The industry will be economically balanced.

The average contractor will make more net profit if he confines his efforts to contracting exclusively.

A few years ago the idea was promoted that all contractors should set up a store on Main Street and become a dealer—a merchandiser.

The average contractor has limited financial resources.

Usually his place of business is in an office building or on a street removed from the district frequented by women shoppers—and they are the principal buyers of appliances.

His training has been along electrical and mechanical lines and the handling of supplies—he knows little about the profession of merchandising or specialty selling.

He is in most cases incompetent to develop or direct highly trained specialty salesmen.

To enter the merchandise or specialty business the contractor must divide his limited capital between his contracting and appliance business. This division may jeopardize the full development of his contracting business.

If he opens a shop on Main Street or a side street adjacent thereto, he must pay a higher rent and invest in attractive store fixtures and it will be many years before the profits on store sales will pay the rent, the interest on the investment and clerk hire.

His only chance of success is to maintain an outside sales force on a straight commission basis. This method involves time payment which the average contractor cannot carry alone; he must have his paper discounted which means an extra charge to his customers which in most cases is more than the customers need pay at department or other stores, particularly on charge accounts.

Any great degree of success of his appliance business depends upon the

employment of an experienced merchandise or specialty sales manager and salesmen. The contractor will find this his greatest difficulty. This class of salesmen prefer to work for large firms whose reputation and prestige help to win the salesmen en masse to the better homes and with which firms there is some chance of advancement.

A contractor operating in medium sized towns or small cities may develop a fair volume of sales at a profit through his contracts to wire old houses and he may be able to secure local salesmen who would be satisfied with their earnings as such.

In this way a contractor in a small town or city may be able to conduct an appliance business with a fair degree of profit without interfering with his contracting business; but there is a lot of truth in the old proverb that a man cannot serve two masters.

Considering all cases the claim that a contractor's money, time and energy spent in developing an appliance business would produce greater profit if devoted to increasing the contracting business is at least a debatable question.

Assuming that there is sufficient generating and line capacity to accommodate the increased business, every branch of the business led by the central station should combine in a well-organized sustained effort to electrify the community.

The power of publicity has taught us to lather with Colgate and shave with a Gillette; to wear B. V. D. underwear, Holeproof hose, Manhattan shirts, Arrow Brand Collars, Kaiser Kravats, Hart, Schaffner & Marks clothes, Regal shoes, Stetson hats, Meyer's gloves; to smoke Camels and Fatimas; to chew Wrigley's Spearmint; to drink Haig & Haig, to eat the fifty-seven different kinds of foods; to buy Victor records and listen to radio.

Our lives are influenced far more than we suspect by the power of publicity.

It has sold enough chewing gum at five cents a package to make Wrigley a multimillionaire in ten years.

If this powerful influence of publicity were intelligently and persistently used in an organized way by all branches of the electrical industry to develop the latent popularity of electric service, the results would be astonishing.

And all competent contractors would be busy installing wiring at a profit.

The Dealer

Merchandising is a business or profession in itself.

It is a composite of direct and indirect selling methods, the highest development of which has been perfected through years of practice by men who have given their lives to the work.

Merchandizing is a keenly competitive business.

Anyone who would succeed in it must know its principles and various phases thoroughly and be able to practice them with a proficiency equal to that of any of his competitors.

The forming of associations and the standardization of distribution methods, types of appliances, qualities, costs and ethics, has established a high standard of fair, constructive competition in the electrical merchandising business.

Because of this work and the popular demand for electrical appliances, successful electrical merchandising is much easier than many other lines.

These conditions have aroused in some minds false hopes and wrong ideas.

To succeed in electrical merchandising, knowledge of and the practice of merchandising principles are just as essential as in any other business.

The electrical appliance dealer must render the public a high standard of sales service that attracts, satisfies and holds customers.

The dealer who does this to the greatest degree and promotes his business energetically secures the greatest volume of business whether he be central station manager, contractor-dealer or any other kind of dealer selling electrical appliances,

—because electrical merchandising like any other line is an open field with the public acting as judge.
—and the public has no favorites.

It acts upon a self interest basis and buys where it gets the most for its money.

If because of their pioneer work, years of promotion activities, knowledge of the business and their sales service, central stations have built the popular belief that they are the headquarters for electrical appliances, then central stations would do the public a great injustice to abandon the field until equally good sales service is supplied by others.

Inasmuch as all other dealers will sell electric appliances only for the profit made on the sale alone, no other dealer will have a basic interest in electric appliance sales equal to that of the central station and when appliance sales fail to produce a sufficient net profit the dealer will naturally discontinue the business or department.

So it seems best for all on economic basis that all central stations, at least those who are now doing so, should sell electric appliances.

If such a plan is economically wrong and works an injustice upon any other dealer, the remedy is in the hands of the dealers—give the public a better sales service and the public will transfer its patronage.

The self interest of the buying public will reward the dealer whose sales service and sales energy merits the preference.

In conducting an appliance department the central station as the leader of the industry in the community should use every means to encourage and assist all other dealers through actual co-operative work such as:

—publishing educational advertising and acting as leader in maintaining an electrical page in the newspaper;

—conducting such educational features as lectures or talks before schools and associations, demonstrations at church fairs and trade shows, electrical homes, etc.;
—maintain a high standard of quality in appliances and sell only at list prices (except during sales) for the purpose of encouraging other dealers to sell only high quality of goods;
—conducting coöperative campaigns for the sale of irons or other appliances for limited periods;
—discuss with a working committee of an association of dealers various methods of improving merchandising conditions in industry, and to increase the popular demand for appliances in the community.

The electragist should keep in mind just what is required of a dealer; what he must know about merchandising; the sales service he must render and how the sales service he can render compares with that which old established retail houses are giving.

When contractor-dealers argue for the central station to quit the appliance business they should remember that in that event there is no assurance that they would secure a large proportion of the business now done by the central station.

There is every reason to believe that because of their highly developed retail organization and clientele the department stores and other established dealers would secure the major portion of the business relinquished by the central station, particularly in larger cities.

Mutual incentive—non-conflicting interests—clearly defined lines of demarcation between branches—sincere, earnest effort—broad, unselfish viewpoint—enthusiasm—good fellowship—confidence—these are the qualities that make up effective coöperation.

The link that holds them together is confidence.

Electricity at the Pageant of Progress

BY W. B. STODDARD

The Description of Some of the Displays at This Great Exhibition May Prove Valuable to Electragists

As was quite natural, electricity played a large part in the Pageant of Progress, which took place in Chicago in August. There has probably been more progress made in electrical development the past few years than in any other line, and devices that a short time ago were considered a luxury are now a necessity in all well ordered homes. To prove this without a doubt one needs only to visit a great exposition and ob-

serve the scores of new companies each year that are catering to the housewife in the efficient running of the home. Every year there are new washing machines, ironers, vacuum cleaners and other electrical machines placed on the market—and practically every manufacturer was located in the several miles of exhibits that stretched out in varied array along the Municipal Pier during the Pageant of Progress.

The Commonwealth Edison Company

had several booths. In the first were washing and ironing machines, vacuum cleaner and phonograph all being demonstrated. Passing through the outer room one entered the electric kitchen, with its splendid system of lighting. Here was seen an electric range as well as a table with percolator, waffle iron, toaster and grill. A demonstrator in charge baked food on the range, and used the other electric utensils in preparing an appetizing breakfast, small

portions of the viands being served to all interested visitors.

Featuring Lamps

The Westinghouse Lamp Company had a life size reproduction in relief of the Mrs. O'Leary and her famous cow, together with the lamp that caused the conflagration. In little cabinets at either side of the big picture were "The Lamp of Yesterday"—a kerosene lamp, and "The Lamp of Today"—an electric one. Another interesting feature at its booth was a large map of the world with ribbons running to the points from which its different equipment and supplies were secured. Every continent save Australia was represented. Three other booths showed its other products—stoves, motors for phonographs, and a number of small appliances.

The Western Electric Company showed a replica of the broadcasting radio set which it made for the Chicago Daily News. Another booth showed different types of lamps; and a third was given over to washing machines.

The Chicago Washing Machine Company showed a washer in operation, with a card "96 times a minute each garment is lifted up and turned over in the hot suds." An ironer was shown with a card "Iron sitting down!"

The National Sewing Machine Company demonstrated to scores of interested women the ease with which sewing could be done by using the electric motor attachment. The booth was fitted up as a sewing room and showed a number of cabinets and tables as well as the machines themselves.

The Big Three Vacuum Company had a striking booth upholstered in red with garlands of red and gold autumn leaves. Against this background the washing machines, enameled in grey, stood out distinctly. One of them was in operation, the churning suds being plainly visible.

Displaying Large and Small Equipment

The Truscott-Pierce Company featured a washer. In the rear were large paints of Niagara Falls, while in the center was a huge pyramid formed of washing machines, those of the second tier being in active operation. Running signs fastened at either end of the pyramid, are kept in constant motion, and told of the good points of the machine.

The Stover Company, distributors of refrigerators, had a booth that was backed with blue velvet against which the ivory toned refrigerators showed to good advantage. The larger one in the centre had electric installation, and the demonstrator showed how one of the compartments could be used for the freezing of ice cream. Cards advised "Delicious custards, mousses, ices and salads may be frozen in your electric refrigerator." Hanging vines and pink flowers on the entrance posts added much to the beauty of the booth.

The Horton Machine Company showed a rack of freshly ironed clothes and an ironer in operation. Another booth was backed with black cloth and had a platform covered with same on which was a washing machine in operation. A card near the ironing machine observed: "Stop toiling over an ironing board many hours every day—A Blank costs only 31½c an hour to operate."

In close proximity to the model of the elevated roads was the exhibit of the Lionel Corporation—dealers in electric toys. Here was a panorama of mountains and valleys, streams and bridges, trees and villages, with an electric track running over bridges and through tunnels, and cars stopping at the village, where a number of small passengers were waiting.

Some Novel Booths

The Pneuvac Company featured a vacuum cleaner showing life size paint-

ings of a child using one of the cleaners. On a table was arranged a small room with a card "Apartment of Mrs. Wise," showing a doll using a vacuum cleaner. There were also two vacuum cleaners in operation on rugs laid on tables. They offered a prize to the person guessing nearest the number of revolutions per minute of the sweeper brush; and also offered a vacuum mop free with every sweeper.

Standard Domestic Appliance Company had at either side of its exhibit large gray boxes lined with dark blue and brightly lighted. In one was a vacuum cleaner and in the other a washing machine. Down front in the centre was a large bronze vase filled with flowers and at either side were vacuum cleaners and electric washers being demonstrated.

The Albaugh-Dover Company featured a washer. In an alcove draped with purple silk was a washing machine in operation. A washer was shown close to two stationary tubs, and close by on a panel all the different parts of the machine, while the major part of the background of white was studded with myriads of butterflies of all hues.

The Eden Appliance Company showed a washer in operation and being demonstrated, while on a dais was another machine of steel and copper with a life size cutout figure beside it. A poster in blue and flame was captioned "Safe for the Kiddies;" one in blue and green, showing a clown "Fool Proof;" and one in white and lavender, showing a mother "Son, for Mother's Sake Buy a Blank."

Utilities Sales Division showed a practical ironer for the home with a card "Ironing becomes a pleasure instead of a drudgery. The ironer saves 50% of the time, 95% of the labor." They showed a rack of ironed clothes and a demonstrator at work.

Other Striking Displays

C. E. Sundberg Company showed a washer. The background was a brilliant blue with the name of the washer in orange. A washer and ironer were both being demonstrated. Large orange cards asked "Have you answered the question?" and orange interrogation points of cardboard were hung from the ceiling. A girl in orange trousers and wired, flaring coat of navy blue satin, with big orange interrogation point on the back of the coat, circulated among the crowds in the vicinity of the booth, handing out literature telling about the good points of this particular machine.



Mrs. O'Leary and Her Famous Cow Together With the Lamp That Caused the Fire—An Effective Display

The Radio Corporation of America had a booth trimmed with dark green foliage and decorated with palm and green window boxes. Wicker chairs were scattered about and a card invited anyone interested in radio to come in and talk about their radio problems.

The larger electric companies took advantage of the Pageant of Progress to conduct special sales, during which the larger appliances such as vacuum cleaners and clothes and dish washing

machines were offered at special rates.

Undoubtedly the most striking display in the Loop District was that of the Electric Shop. One window was devoted to radio supplies, and another to featuring a special brand of soap flakes for washing. The entire window was filled with packages of the flakes, with the washing machine in the centre. The window featuring electric fans was especially beautiful and attractive. The outstanding feature was a juvenile auto

filled with children and dogs, the wheels being kept in motion by a concealed pulley. There were palm trees at either end of the window and at the back electric fans. Cards of blue lettered in white were scattered through the window, one of the best being "Take home a fan now—the whole family will enjoy its cool breezes," while another that appealed to parents said "Guard baby from hot weather by using a fan in the nursery."

The Successful Electric Home in Nashville

By W. W. GAMBILL, JR.

Sales Manager of Braid Electric Company Says It Is the South's Greatest Accomplishment of the Kind

If I told you that Nashville had put over the greatest electric home in America you would seriously question the veracity of my statement, so I will only say that we have put over the greatest campaign of this kind ever attempted in the south. We have a town, as you know, of about one hundred thirty thousand people and naturally finances in an unlimited amount were not available.

The Electric Club of Nashville was organized about four years ago and now comprises practically all of the electrical interests in the city. About a year ago the question of an electric home was brought up at one of the meetings and while we all felt that this was a wonderful proposition, nothing was done until about the first of April of this year.

About this time some few of the members took hold of the proposition aggressively and secured a live home builder and made definite plans for our electric home. An agreement was then made with a furnishings company and a music store for the furnishings of this home (and let me say here that you can't be too careful in your selection of these people—get the liveliest and most aggressive concern in your city if you want to make your home a success).

The wiring of the home was laid out and a committee of one appointed to handle this end of the job. Wiring supplies were all furnished by the local jobber at actual wholesaler's cost. Then we had in addition the following committees which were as small as consistent so as to fix individual responsibility for everything which had to be done:

Lighting Fixture Committee
Advertising Committee
Appliance Committee
House Committee
Attendance Committee

The heads of each of these committees composed the general electric home committee which was responsible largely for the success of the home.

As for the results when the home had been open for only two weeks we had an attendance of approximately 10,000. At the prize drawing nearly 3,000 people were there. Everyone who passed through the house was given a ticket which was filled in and dropped in the box in the laundry. Saturday nights

These prizes were all voluntarily donated by the various electrical concerns and mention of the donors at the time of the drawing was the only place where any individual publicity was allowed.

Our electric home books constituted a permanent reference guide for the visitors and gave a complete list of the electrical appliances necessary to make a real electric home. The advertising committee sold advertising in this booklet at \$60 per page, sufficient to pay for the booklets and the coupons used for the prize drawing so this did not mean any outlay of money on the part of the club. The advertising committee ran advertising practically every day in the newspapers for a month. The newspapers cooperated and gave us all the publicity we needed, and we do not feel that there was anyone in Nashville who did not know about the electric home. Many unusual publicity stunts were used such as:

Civic club nights.

Aeroplanes flying over the city.

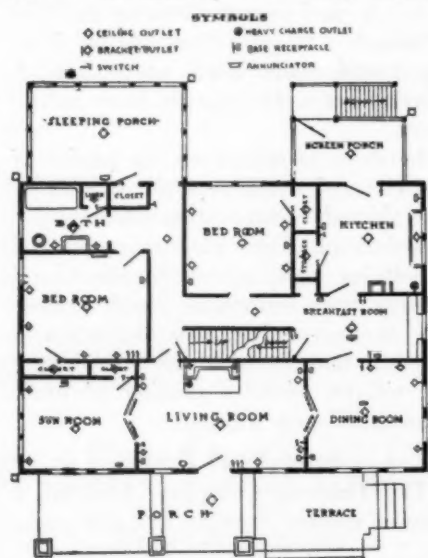
A burglar at the home after which the chief of police approved the burglar alarm system.

The presence of Miss Maude George, movie actress, who showed foolish wives how to be sensible through the use of electrical appliances, (Her picture, "Foolish Wives" was being shown at a local theatre the week she visited the home).

A complete radio receiving outfit connected up which received special broadcasting which was done for the benefit of the visitors, and very complete electric cookery demonstrations.

Metal arrow signs pointing the way from the various points of town toward the home and an electric sign pointing down from the car line to the home, together with individual signs on every street car.

Personally I was not very enthusiastic about the electric home when I first read of the idea, but since I have been in one of these campaigns and have felt the results directly, I believe I can say that it is the greatest opportunity



First Floor Wiring Plan

the tickets were all put in an electric churn on the front porch and thoroughly mixed and then the numbers were drawn by a three year old girl. The prize winners were compelled to be present at the time of drawing so we always had a crowd on Saturday night. Ten big prizes were given away each week. The first prize was equal in value to an electric vacuum cleaner and the others ranged down to a flashlight. On the last Saturday night, August 12, the first prize was an electric range.

ever presented for cheap advertising. I am certainly glad that I am in the electrical business.

The house was located in the best residential section of the city, one block from the car line. It was built of Bowling Green stone and the roof was of red composition tiling. The porch coping, walls, and steps were finished with dark red terra cotta.

A spacious front porch lead the visitor directly into the living room. Here the prevailing tone of upholstery and draperies was black and gold with furniture finished in antique walnut. To the left of the living room was a delightful little sun room ideally furnished with adorable early American chairs and tables. Lighting in both rooms was from soft shaded portable lamps and wall brackets using the new golden glow lamps.

The dining room directly to the right of the living room and opening into it was a study in blue. Rugs and draperies in this color blended admirably with table, chairs, buffet and silver cabinet of seventeenth century English design finished in walnut. The central lighting unit was a silver candle piece, suspended in the center of the room; on the buffet a pair of silver candlesticks with colored shades lent an air of restful quiet to the room. The walls in the living room, dining room and sun room were unpapered being finished in a lovely shade of warm grey.

One of the bed chambers was furnished with a gray suite, the walls be-

ing tinted a delicate pink. In the guest room the furniture was ivory and the walls blue. The bath was finished in white tile, a creamy tint on the upper half of the walls offering a well defined contrast to the white of tile and fixtures.

The breakfast room was furnished with table, chairs, and small buffet in French gray and blue enamel. The wall was tinted a delicate blue.

The kitchen was a delight to the eye. The walls were a delicate green tint and the woodwork white enamel. The kitchen cabinet, electric stove, electric refrigerator, table and other kitchen accessories were arranged to reduce to the minimum the labor of cooking.

Every electrical appliance of proven practical value was installed in its proper place in the home. The wiring system was complete to the minutest detail. Separate convenience outlets were provided for all appliances, so that it was never necessary to disconnect one appliance in order to use another. Control of all lighting sources from wall switches eliminated groping in the dark for chains and keysockets. A master control switch in the main bedroom made it possible to flood the entire exterior of the house with light. This is an excellent feature which has been neglected in most residences and provides splendid protection against a midnight invasion by burglars.

A complete burglar alarm system was installed which made it possible for one to flood the outside of the house with



This Conveniently Equipped Dressing Table Had Many Admirers

light the minute any of the openings in the house was being tampered with. One could immediately flood the exterior of the house with light and place the intruder at a disadvantage instead of being placed in such a position himself by having turned on a light on the inside of the house.

A home so equipped should prove a delight to any housewife, for electricity applied to domestic problems makes housekeeping a real pleasure. More than fifty different appliances, each scientifically designed to eliminate useless labor, making washing, ironing, sewing, sweeping and cooking, part of a pleasant game instead of hard work to be feared and dreaded.

The Complex Electric Light

The tungsten filament electric lamp, a familiar object in countless households, seems a simple thing. Yet into the manufacture of this article enter elements from several countries.

The tungsten, the metal from which the filament is made, comes from ore produced chiefly in California, Colorado, Nevada and South Dakota. The glass bulb requires for its manufacture silica, soda, nitre which comes from Chile, potash, manganese, a great deal of which is produced in Russia, arsenic, borax, feldspar, lead, aluminum, cryolite from Greenland and cobalt from Canada.

The base of the lamp is a composition of copper from Utah and zinc from Missouri. The cement in the base is a mixture of marble dust from the Vermont marble quarries, whiting from Ohio, shellac from India and pine resin from the Southern States.



The Basement is Important. It Was Particularly Well Laid Out Electrically in the Nashville Home

If I Was Selling Electrical Appliances

BY MRS. ARTHUR P. PETERSON

These Suggestions From Casual Observances Made by the Wife of the Minnesota Secretary Are Pertinent and Evidence the Buyer's Point of View

The average electrical dealer's show window looks like a machine shop—a lifeless, mechanical array of flat irons, fans, coffee percolators, radio sets and whatnot jumbled together with no thought as to the effect upon the passing public and particularly that large element which if interested might become purchasers, the American housewife.

Now I do not pretend to set myself up as an authority as to how an electrical contractor or dealer should conduct his business. Such terms as knob and tube work, wiring in conduit, estimating, etc., mean nothing to me. I shall even go further and confess that until recently I thought that there was one electric light plant in each city that wired residences and office buildings and supplied the current in much the same way that the telephone company installs the telephone in both new and old buildings and attends to the connections! I never dreamed that when a new building was to be wired estimates must be made and bids submitted.

So I shall confine my remarks entirely to one phase of the work—window displays—thinking possibly that other women may think the same as I do along that line. I will also attempt to draw a few analogies between electrical displays and those of other lines of business.

Strive for Human Interest

In the first place the average electrical display lacks human interest. Perhaps I know little of salesmanship, but it strikes me as a self evident truth that people *buy* what they want to buy no matter what the price. The problem then before the dealer is to create a desire for these things on the part of the "comptrollers of the currency."

If I were a dealer I would make my window display attractive, original and full of human interest. In other words I would try to impress the passerby to such an extent that she would first visualize the objects in her own home—then come in and buy.

The human interest appeal cannot be overestimated. In this connection I am reminded of two or three instances of successful window advertising that I have observed. One is of a shoe store which had one of its staff impersonate

a noted man who appeared in the show window at irregular intervals during the day. Another is of a recent style show where the people simply stampeded the windows where the living models were displaying gowns and wraps, while the window displays of other shops, beautiful as they were, were practically unnoticed.

And how about furniture displays? Does the successful furniture dealer try to display all of his stock at once by crowding his display windows with bedsteads, rockers, kitchen cabinets, ferneries, and baby carriages with no attention paid to arrangement or propriety? He does not. He arranges his display so that it links up definitely with the home and he leaves something to the imagination.

Some Display Pointers

If I were an electrical dealer and had a coffee percolator and toaster to sell, I would fit up my window as a little breakfast room. I would set the table correctly (or ask my wife to) with a dish of fruit in the center and the shining percolator and toaster in their proper places. On a nearby stand or table I would place an electric grill or waffle iron. Then I would have a suitable placard printed showing how such an electric breakfast room would start the day right for all members of the family and especially prove a boon to the busy mothers who have little ones to get off to school.

If I had an electric fan to sell, I would display it in connection with an electric ironer, making a printed suggestion as to keeping cool in hot weather. In this connection I would procure wax figures, if they were not too expensive, of ladies using the appliances. At any rate I would at least obtain cardboard figures. I would have freshly ironed clothes hanging on clothes horses or lying in neat piles on a nearby table.

In displaying a washing machine I would not only have the clothes sudsing up and down in the machine, but would include a line full of clean but not ironed clothes fluttering in the breeze of a couple of concealed electric fans.

Electric reading lamps and floor lamps would sell better I believe if a wax model were seated in a big com-

fortable easy chair by a library table one which was an attractive lamp. A floor lamp could shed its soft glow on a radio set placed on a table nearby. In this display I would make use of a vase or two together with other decorative objects.

Using Wax Models

My lady's boudoir would show a beautiful wax damsel seated before a vanity case, upon which reposed the electric curling iron, vibrator, etc. Soft shaded candles would add to the attractiveness of the scene.

And so on down the almost endless array of appliances, I would display each in its proper place and in such a way as to suggest its rightful place in the home.

Then along the line of proper displays: Why don't electrical dealers make the most of seasonal advertising? Just the other day as I sat in an automobile outside of an electric store shivering in the cold a dozen fans were sending their cool breezes back and forth. Would such a display attract the passerby?

If I had an electrical store I would arrange special displays at Christmas time for example of men's gifts such as flashlights, radio sets, electric shaving outfits, cigar lighters, etc. It is unnecessary for me to go into detail as to other displays, as the trade papers are ever telling the dealer what to display in season.

These few hints may suggest something to the dealer, and if he will study window displays in other lines of business, the advertisements of nationally known products as well as the suggestions of the lady members of his staff and his wife, should experience no difficulty in increasing his sales of electrical appliances.

Wise Salesmanship

"Women are funny," says a vacuum cleaner salesman. "Some of them will call up a different company each month for a demonstration and have a free cleaning. I never leave a cleaner with them overnight any more, and in giving a home demonstration I clean only half of a rug and leave the other half for her to think about."

A Big Business in a Little Town

By J. E. BULLARD

What Can Be Done When a Man Uses Common Sense in All His Dealings All the Time

Phenix, R. I., is a small village. In fact it is so small that one would hardly expect to find a prosperous contractor-dealer in it. Yet the Phenix Electric Company has been growing steadily for the past twenty years and for more than ten has been housed in a two story business block owned by the man who built the business.

In 1902 E. E. Page started the company with a small stock of electrical goods and a well equipped small machine shop. He did contracting, sold goods in the store, and did general motor repairing as well as other machine work.

Mr. Page took as his policy at the start, building for the future. His aim was to satisfy every customer and to serve the public as much as he possibly could. He was doing the kind of work that he liked to do best. Since then he has conducted it along the lines that most appeal to him, and his success bears out the statements that Harry Lauder so often emphasizes when he talks at a Rotary Club luncheon. That is if you don't like the work you are doing now get out of it and into something that you do like.

At the start the stock of goods that Mr. Page carried was small. He did not carry a very large variety. However, he was there to serve the public so when anyone came in to buy anything he didn't have he promised to get it and he kept his promise. He did not ask the customer to leave an order for the article. He did not expect that customer to come in and buy it if for any reason the desire to buy it had passed. He figured that if one person called for this article others would soon be doing so and has found that this is the way that it has worked.

Goods Quickly Sold

Following this policy has given him a varied stock of rapidly selling goods. Today the business is divided into two stores. One is an appliance store where all kinds of electrical appliances and fixtures are sold. The other is a hardware store where all kinds of hardware, automobile accessories, paints and the like for which there is a demand in the sales territory are car-

ried. His present day customers are not conned to Phenix. He draws trade from all the surrounding villages. Back of the stores is located the machine shop.

Though striving to give the people what they really want the Phenix Electric Company has not waited for people to come to it. From the start it has had an outside man, soliciting business and making collections. This man is a permanent man. He is kept busy dull seasons and busy seasons, during good times and bad times.

By making this work permanent work it has been easier to get and to keep the right man. A good man is always employed, and it has been found that it pays to follow this practice. It means the employing of fewer men and getting better results in the end. The man employed is also always busy. There is always plenty of work for him to do.

Like other employees of the company this man is paid a regular salary and made to feel that he is a regular employe of the firm. He doesn't have the feeling that so many men employed on a commission basis have, that they have no real connection with the firm, that they are virtually in business for themselves, and that if there is a promise of a little more money somewhere else the right thing is to jump for it because all the future there is before them is the money that they can get at once.

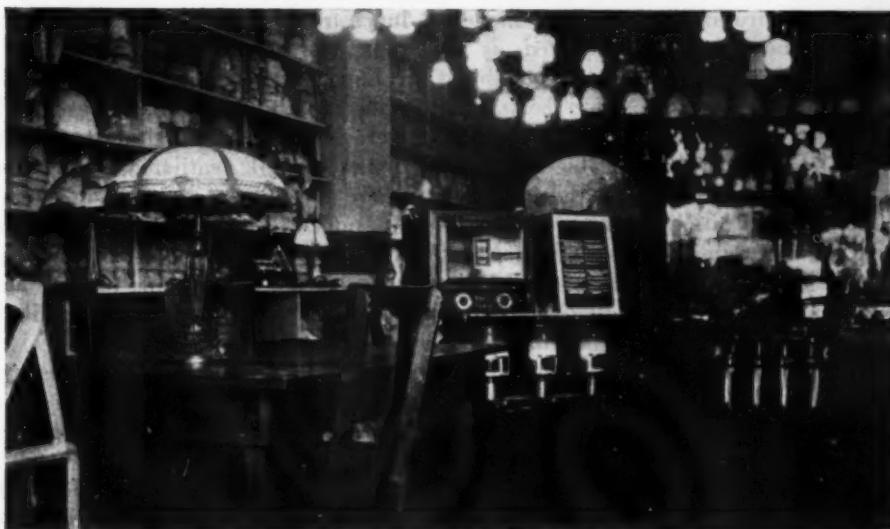
All Employees Rewarded

In other words it is the policy of this company to make those employed by it feel that they too are building for the future when they put forth their best efforts. The result is that to a casual observer it is not easy to tell just who is a member of the firm and who is not for all take so much interest in it.

This naturally has helped in building up the business. Get the employees really interested and they are bound to get much better results than they otherwise would.

No small part of this interest, however, is due to being in personal contact with Mr. Page himself. Find a man who is really interested in his business, a man who is in it because he likes it better than he likes anything else and not merely because he thinks that he can make more money in it than in something else, and you find a man whose employees are pretty sure to take an interest in it. The interest is more or less contagious.

The building in which the business started was a wooden one not especially well adapted for store purposes. At that time, however, there were not many appliances on the market and electric current was so expensive that only those with good incomes could afford to use it. In about eight years with the growth and the expansion of the business this location was outgrown and to



A Corner in the Phenix Electric Company's Store That Proves the Worthwhileness of Proper Storing

have a permanent store home, the modern brick building now occupied was purchased.

The appliance store occupies the larger store of the two and has two good sized show windows. In it there is an attractive display of electrical appliances and fixtures. In fact it is a really up-to-date electric shop.

The hardware, paint and automobile accessories occupy the adjoining store which is slightly smaller in size. This store is well stocked with goods and it is hard to call for anything in the line of goods carried that is not in stock.

Novel Display Methods

A rather novel method that is used to attract people to the windows of this store is a bubbler installed on the window sill just outside. In back of this bubbler where anyone using it to get

a drink cannot fail to see it, is a bronze plate stating that it was installed by the Phenix Electric Company. This bubbler therefore acts as a sort of permanent



This View Cannot Do Justice to the Well Planned Store

window display all by itself. It also brings people to this side of the street who otherwise might not be brought there.

On the question of turnover this company realizes that rapid turnover is not accomplished by buying in small quantities and buying often if the money isn't secured for the goods sold. It recognizes that being slow to extend credit and being quick to make collections has much to do with turnover if it is the money invested which is being considered as does the buying and selling of goods. Since the profit is really made on the capital invested and not on the goods it is the money that should be considered when talking of turnover. Therefore this company extends credit with the greatest care and makes all collections with the greatest possible speed.

Selling a New and Important Field

Ventilating Equipment Offers Unusual Opportunities for the Progressive Electragist

A field that offers unusual sales opportunities to the electragist is that of ventilating equipment. The wide range of usage that this equipment covers makes prospects of one kind or another in every place whether city or town. Everybody from the housewife to the bank president is benefitted by the breeze that blows artificially. Let us enumerate a few of the opportunities: On the health score we find that without due attention to the laws of correct ventilation all buildings eventually become nurseries of sickness and disease. In this day and age no structure can truthfully be called modern that is not efficiently ventilated.

Statistical facts and figures compiled by eminent physicians and health authorities reveal the dangers of foul air. But now that our most able architects and building contractors have deeply interested themselves in correct ventilation, the public will see the laws of good health religiously respected. Practically all modern buildings erected in the last ten years are provided with up-to-date means of ventilation.

It would require a book of a thousand or more pages to illustrate the many prominent hotels, schools, hospitals, theatres, churches, club houses and public buildings in which electric fans and blowers are installed, but you will have no trouble in locating some

of the places right in your home town where a field of fertile sales opportunities exists.

It's human nature the world over to frequent the restaurant which provides the utmost in comfort for its patrons, and nothing is more inviting and adds more zest and joy to the meal than correct ventilation—pure fresh air—the breath of the great out doors.

Practically all the big men in the restaurant business have long endorsed ventilating equipment and employ it exclusively. Wherever you go you will find it installed in the most up-to-date lunch rooms, prominent cafes, restaurants and representative hotels.

Experience has taught the successful restaurant and hotel managers that there is nothing so inviting to the public as a well ventilated dining room where the patron can dine in comfort. A stuffy, badly ventilated restaurant, with its objectionable kitchen odors, is anything but encouraging to one's appetite, and in this respect ventilating equipment pays big dividends.

The dollar and cents value of correct ventilation for farm buildings is another consideration. An authority on dairy farming has stated that fresh air is two-thirds of a cow's ration. The reason is easily understood. Nature did not intend that a cow or other animals should be kept indoors. Nature made

the cow for the great out of doors, where fresh air is always abundant.

And yet many farmers who take the greatest care in feeding their cows—who would not think of giving them impure water or bad feed—keep them in barns without proper ventilation, where they must breathe stagnant air poisoned by foul odors of manure. No matter how much hard work or how much care a farmer gives his cattle he is losing money when he does not provide proper ventilation for his cattle and horses.

Now we come to the store field: Clean, fresh, invigorating atmosphere—the inviting air of the great out of doors gently wafted across the entire area of the store, providing a complete change of air every few minutes—that's what you call *Correct Ventilation* as defined by the laws of good health!—made possible with ventilating fans.

Modern drug stores and confectionery shops are frequently ventilated with fans. The first cost is very little and the operating expense only a few cents a day. Every merchant who is soliciting the trade of the discriminating public will find that electric ventilating fans are a profitable investment.

A single fan installed in the ordinary drug store effectively removes all the obnoxious odors which come from the prescription department and damp

moist air which frequently arises from soda fountains and basement openings—adding to the comfort of customers and the efficiency of the clerks.

Every confectionery shop needs a fan to remove the hot depressing air from the kitchen. Fruit merchants and dealers in perishable food delicacies will find that perfect ventilation keeps their stock in fresh condition—materially reduces spoilage and is an important factor in maintaining a uniform temperature irrespective of weather conditions.

As for the theatre—all humanity is learning to shun the theatre that is not correctly ventilated. With due respect to modern architecture, attractive fixtures, furnishings and decorations, there is nothing so inviting to the theatre going public as clean, fresh, invigorating atmosphere—where an afternoon or evening entertainment can be spent in peace and comfort—in winter or summer—regardless of outdoor temperatures.

For the large theatres we recommend two large propeller fans blowing in either from the ceiling or at one end and two propeller fans pulling out. With this system perfect distribution can be obtained and in mild weather when less ventilation is required one blow in fan and one exhaust fan can be shut down. In very cold weather the blow in fans can be shut down entirely and one or two exhaust fans operated.

In smaller theatres this system can be simplified by providing one blow in and one pull out fan and in some small theatres one or two pull out fans only, properly placed, will give first class results. Self-cooled motor propeller fans are in use in many thousands of theatres in the United States and foreign countries.

Here's a selling point for you in talking to anybody but more particularly

the industrial prospect: Man power is measured by working conditions. The way a man feels, so does he work. Whether he is an office employe or fac-



Modern Kitchens Are Not Complete Without Ventilating Fans

tory worker his brain power, muscle strength, and physical endurance are measured by the atmospheric conditions of the room in which he toils. Pure fresh air is the driving power of the human system—a factor that every employer must recognize in seeking production efficiency and the health, safety and comfort of his fellow men. The statistical evidence in the matter is a revelation, and the facts and figures supported by cost systems and production charts constitute the evidence which has influenced the most representative institutions installing ventilating equipment.

Go after this business! It's up to every electracist; there's room for all. Opportunity lies on every hand. In addition to such buildings in your territory as hotels, schools, hospitals, theatres, churches, club houses, and other public buildings, there are the homes. After you have made a careful survey of your prospects get your selling points down and go out to get your share of this good business.

Showcase Lighting

Considerable Profit Can be Derived From This Source

Showcase lighting is the much neglected field of the electracist as a visit to a number of retail stores will show. The reason for this is somewhat of a mystery when it is known that it is a very lucrative and easily cultivated field. Merchants now more than ever are casting about for means to increase business—to get customers to loosen up—so welcome a suggestion

of any practical means to accomplish that end.

Next to the show windows the showcases are the best sales starters at the merchant's command. Throughout the day customers wander about the store, while waiting for change, for purchases to be wrapped, or for a clerk to serve them. During these moments, merchandise in the showcases should be beckoning for attention and stimulating a desire for possession. Proper showcase illumination helps to accomplish this; first, by attracting attention, and second, by revealing the goods in the most appealing manner.

Proper showcase illumination is a matter of selection of the right lighting fixtures and the correct size and number of lamps to the case. What are the requirements? In a few words there must be enough well diffused light from an inconspicuous source to attractively illuminate and contrast the good with the background without casting a glare in the eyes of shoppers or salespeople. It should be borne in mind that dark goods require more illumination than light goods.

To meet these requirements the lighting fixtures should provide overlapping distribution and should blend in with the line of the showcase so that the source of illumination does not obstruct the vision or distract the eye from the goods on display.

The type of unit shown in the accompanying illustration is successfully meeting the requirements outlined



An Example of Good Showcase Lighting above. It is of the sectional type—each section a completely wired unit, and requires very little labor to install it in either glass or wood frame cases.

Electracists can develop a good paying business in this line after a little study of the available equipment and the field. Demonstrations can be made by fitting up a small case that can be strapped on an automobile. A canvass of the neighborhood stores will reveal the extent of this wonderful opportunity.



Every Large Office Should Have a Ventilating Fan

Get Ready for Thanksgiving

BY WILLIAM BLISS

This Time of Year is Always a Profitable Occasion

It's come to thankful time again; the yellow corn is shining;

And every purple autumn grape can show a sugar lining.

The crimson apples crowd the bin; the nuts are bronzed with sweetness

The golden Pumpkins in the field are rounded to completeness.

It has indeed come to be thankful time again and how truly grateful we may be if we can return on that day to our old home—to dear old mother and dad. Of course we want to bring them something to show how much we appreciate the bountiful feast they have prepared for us—and what better than an electric toaster, percolator, heater—or, if all the children club together, an electric vacuum cleaner. Remember that mother is not so young as she used to be, and anything you can give to lighten her household tasks will be doubly appreciated.

The above was the human interest manner in which the Birmingham Electric Co., Birmingham, Ala., called attention to its electric line as a most appreciated Thanksgiving gift. Its

window complemented its ad in a very effective manner. On the gray surface was a band of crepe paper showing pumpkins and turkeys in orange and brown. The floor was covered with dark green felt, on which reposed a heater, percolator, toaster, iron and cleaner, while in the centre was a card on which was printed "We are thankful for Edison and Electric Appliances." Twisted strips of orange paper ran from the card to each of the articles displayed.

Just inside the door, where they would be seen by all who entered were two tables covered with white cloths. One was set for breakfast, the other for lunch, appropriate china being used in both cases. A basket of fruit formed the centerpiece for the breakfast table, while flowers were used for the luncheon. Percolator and toaster were set on the breakfast table; while a grill and samovar graced the other. Cards on the tables advised: "You will be truly THANKFUL if you invest in these handy electric table appliances, and are able to get a breakfast or luncheon while seated at the table. Why not make mother happy too by presenting her with one of these modern electrical conveniences."

This little reminder, greeting their eyes for ten days before Thanksgiving, was responsible for many extra sales.

Modern Street Lighting

Of all cities and villages in New York State with more than 5,000 population, only one expends more than \$2.50 per capita for street lighting. Three spend from \$2 to \$2.50; five

spend between \$1.50 and \$2, and 24 spend from \$1 to \$1.50 per capita. The others spend less than a dollar a person a year for their lighting of streets. The best lighted cities, both in this state and in the country at large, are now paying from \$1.50 to \$2 per capita. And there never has been so much attention given to complete and proper street lighting as now.

Volume of Advertising

Says the Industrial Digest:

When you glance at an advertisement in your daily paper, do you realize that you are reading part of a book of 200,000,000 pages? And yet if all the advertising pages of all the newspapers in this country were piled together they would make a book of this size. For this is the volume of advertising appearing in the newspapers of this country every year.

If these advertising pages were collected for a year they would have a volume 21,000,000 feet thick, the equivalent of 21,000 Woolworth buildings piled top of each other. And although there are no statistics in regard to the amount of printer's ink required, the number of barrels used would undoubtedly make an imposing pyramid.

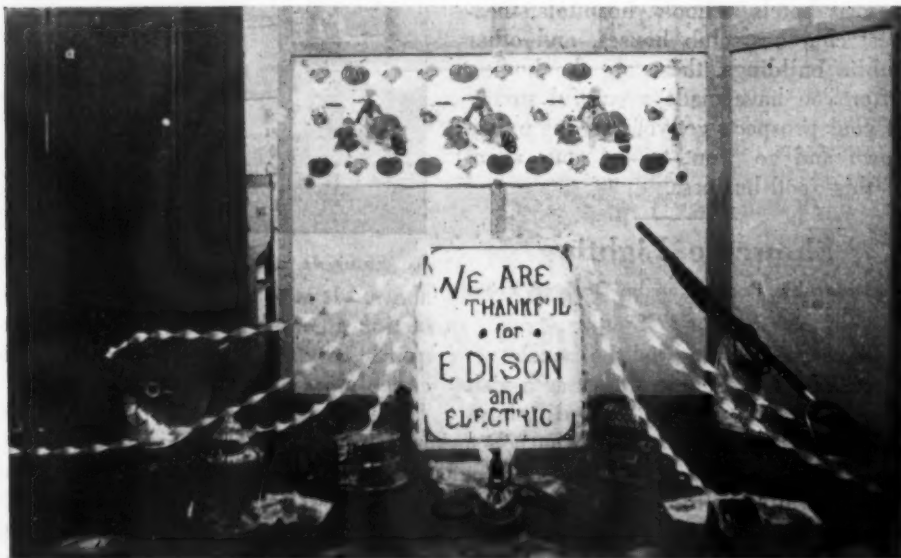
In Grandmother's Day

Under the caption, "In Grandmother's Day," the Okmulgee, Okla., Democrat says:

When grandmother kept house, Monday and Tuesday were washing and ironing days. Friday and Saturday were for house cleaning and beating the rugs. A lot of time was lost in cooking, washing the dishes, and other household chores.

To-day the uptodate housekeeper's washing is done before Monday noon. Electric irons speed Tuesday into a couple of hours. Grandmother never imagined that meals could be prepared so rapidly, nor that dishwashing could be disposed of in such short order. She would have marveled at the effectiveness of vacuum cleaners, better cleansers, and the many household helps designed to lighten, quicken, and improve the work.

That is what advertising means to women today. It has brought them countless appliances which help in their work, better conditions in their homes, add to their pleasure and increase their interest in life.



The Birmingham Electric Company Struck a Pleasing Note in This Display Before Thanksgiving

Attend the National Convention

Send in Your Hotel Reservation, Get Your Railroad Ticket
—One Way Only—and Tell Your Friends to Come Along

Now that you have only a few more days before the big affair in Cincinnati you should see that all plans are made to attend and that nothing is left to hinder you at the last moment. For everything is now in readiness and when the curtain goes up and shows the great gathering of electrical men assembled together in the spacious convention room of the Sinton Hotel to participate in the twenty-second annual meeting of the National Association of Electrical Contractors and Dealers, you too will want to be there.

No doubt you have long since received the information mailed out from National Headquarters relative to hotel accommodations and special railroad rates to the convention city. While there are more than a dozen of the finest hotels in the country located in Cincinnati, you should lose no time in making your reservation. There will be a race meet at Latonia, Kentucky, during the week of October 9, which is expected to draw an unusually large number who will be cared for by the Cincinnati hostesses, and on this account it may prove difficult to make last minute reservations. F. Wm. Becker, 32 West Sixth Street, Cincinnati, is the hotel committee chairman, and all reservations should be made through him.

A reduced rate of one and one-half fare on the certificate plan has been granted for the convention by the Trunk Line and New England, Southwestern, Western, Central, and Southeastern Passenger Associations. The Trans-Continental Passenger Association, covering the Pacific Coast states and other far western territory not otherwise covered, authorize excursion fares from principal stations. This reduced rate, however, is contingent on at least two hundred and fifty members attending the convention who hold the regularly issued certificates. Any ticket agent will be able to give you information regarding fares, routes, attractions, stopovers, etc.

The program of the business sessions is as outlined below but let us here tell you of one of the entertainment features that has been planned. The electrical play to be staged by the lighting sales department of the Union Gas and Electric Company of Cincinnati on Wednesday afternoon, October 11,

should please everybody. These good fellows have worked hard to put this play on successfully and we are told by those who have seen them rehearsing that their efforts are indeed most noteworthy, and should create many a hearty laugh on the part of the delegates who witness the exhibition at the convention. The farce, called *The Awakening of Mr. Moss*, is based on facts all too familiar to certain of those in the contractor-dealer business.

C. W. Moss is a contractor-dealer in an average town where there has been the usual natural development along electrical lines, and Moss—among others—has failed to realize the full possibilities of his business. He has been so long a part of the old order that he has unconsciously become a dyed in the wool pessimist. Certain events transpire, however, to change his viewpoint, and he sees a clear picture of the big field of opportunity ahead of him. A better business bomb is put under his chair one day which on blasting bumps him right out of the sit-down-and-wait-for-'em class and transforms him into the go getter class. Just why Moss does this and just how he does it is of course told by successive steps and should interest everybody who is a contractor-dealer or knows anything about the business.

Association headquarters is at the Hotel Sinton where all sessions will be held. The registration bureau opens at four o'clock, Monday afternoon, October 9, in room 200, mezzanine floor.

Executive committee meetings to be held on October 9-10 will take place in parlor F, also on the mezzanine floor.

The tentative program is as follows:

Wednesday, October 11

Convention Sessions at 10 A. M. and 2 P. M. in Ball Room—ground floor.

Opening Convention—Charles M. Beltzhoover, Cincinnati, Chairman Local Convention Committee.

Welcome to Our City—Geo. P. Carrel, Mayor of Cincinnati.

Response—Jas. R. Strong, New York City, National Chairman.

Business: Yesterday, Today and Tomorrow—George M. Verity, Middletown, O.

Introduction of the Glad Hand Committee.

Adjournment.

Wednesday Afternoon

The Supply Jobber and the Electragnist—W. R. Herstein, Memphis. Discussion.

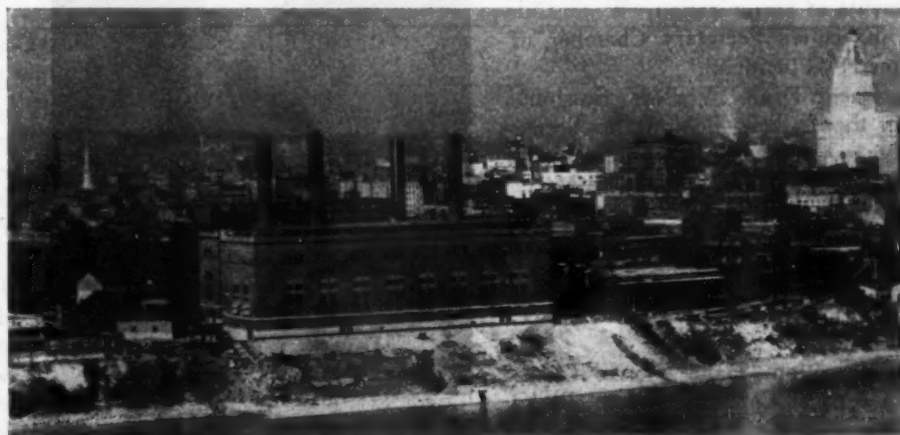
The Joint Committee for Business Development—Frank E. Watts, Editor Electrical Record, New York City. Discussion.

Motion Picture, Selling Something More.

The Awakening of Mr. Moss, a Farce Based on Facts—Staged by the Lighting Sales Department of the Union Gas and Electric Company, Cincinnati.

Ladies will be entertained at Rookwood Pottery and at the Zoo from 2 P. M. to 4:30 P. M. on Wednesday.

Wednesday Evening—Reception and



The Convention City as Seen From the Kentucky Side of the Ohio River. The West End Generating Station of the Union Gas & Electric Co. is Prominently Shown, and on the Right is the Chamber of Commerce Building Near Which is Located Hotel Sinton—Convention Headquarters

Dance at 8:30. P. M., in Ball Room, where guests will be received by the Glad Hand Committee. Radio Entertainment, courtesy A. S. De Veau, Stanley & Patterson, New York, and Milner Electric Company, Cincinnati.

Thursday, October 12

Convention Session 10 A. M., Ball Room—ground floor.

Association Business Session.

The New Manual of Estimating—Arthur L. Abbott, St. Paul. Discussion.

Electrifying America—Getting the Job Done—F. M. Feiker, Vice President, McGraw Hill Company, New York City, and former Assistant to Secretary Hoover, U. S. Dept. of Commerce.

How an Employers' Association Functions—Edward T. Miller, Secretary United Typothetae, Chicago.

Specific Specifications—E. H. Eardley, Chairman Engineers Committee, Salt Lake City, Utah.

Adjournment.

Thursday Afternoon

Annual Outing—The Ohio River Passenger Steamer, Island Queen, will leave the landing at the foot of Vine Street at 2:30 P. M. There is plenty of room for all, and then some. Music, entertainment, dancing, and dinner on board. Official photograph will be taken at Fern Bank Dam.

Friday, October 13

Convention Session 10 A. M. and 2 P. M., Ball Room—ground floor.

Proposed Amendment to Constitution and By-Laws.

How the National Can Improve the Electragist's Business—Laurence W. Davis, New York City.

Benefits of Organization—W. C. Culkins, Executive Secretary Chamber of Commerce, Cincinnati.

Contractor-Dealer Visitors' Session.

For the Ladies—Behind the Scenes in Some of Cincinnati's Exclusive Shops. From 10:30 A. M. to 12 M.

Adjournment.

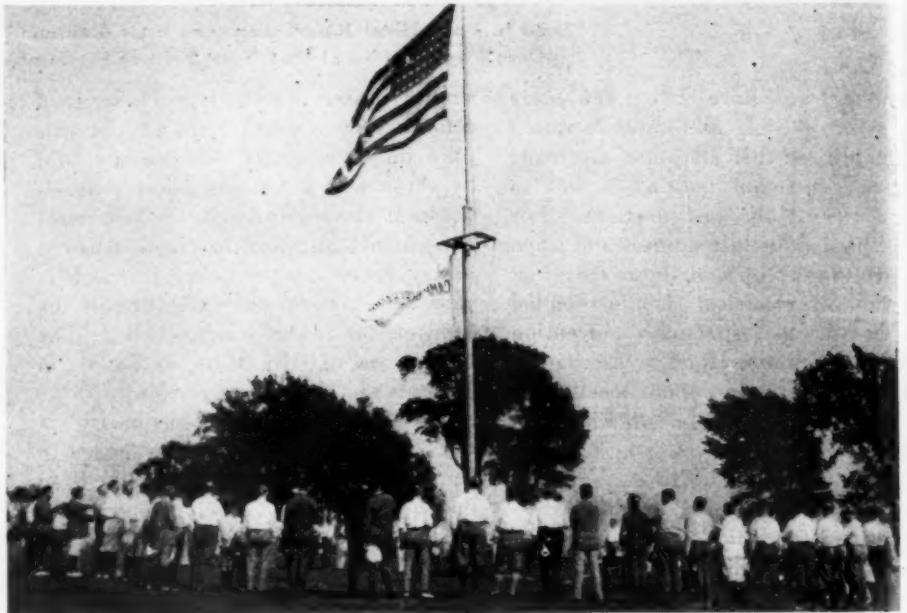
Friday Afternoon

Code Discussion—Leader, A. Penn Denton, Chairman Code Committee, Kansas City.

Recodification—Dana Pierce, Chairman Electrical Committee, N. F. P. A., New York City.

A Central Station's Wiring Campaign—W. W. Freeman, President Union Gas & Electric Co., Cincinnati.

Selling the Electric Idea to the Ladies—Miss Alice Carroll, Society for Electrical Development, New York City.



At the League Conference Held at Association Island Last Month a Flag Raising Ceremony Dedicated Camp Cooperation. An Account of the Conference is Shown on Page 43 of This Issue

Ladies attending the convention will find this address of particular interest, and all are specially invited to be present.

Insurance for Electragists—Lynton T. Block, Indemnity Exchange, St. Louis.

Suggestions by members and others. Five minutes limit for each speaker.

Report of Committee on Resolutions. Adjournment.

Friday Evening

8:30—Unfinished Business of National Executive Committee.

Saturday, October 14

By special arrangement for those who apply at the Registration Bureau, on or before Wednesday night, parties will be made up to visit the Generating Station of the Union Gas & Electric Company, Cincinnati. This mammoth central station plant is 331 feet long and 220 feet wide and cost \$8,000,000. It has a capacity of 125,000 K. V. A.

Light for Centuries

According to the United States Geological Survey, public utilities of the United States had a total output of electricity for 1921 amounting to 40,976,000,000 kilowatt hours. The ordinary 40-watt electric bulb burns only one twenty-fifth of a kilowatt hour of current in one hour. Therefore this enormous output of electricity would keep that bulb burning day and night for nearly 117,000,000 years.

Of this total output of electricity 14,971,000,000 kilowatt hours was produced by water power, a utilization of natural resources which would otherwise have gone to waste. Steam generating plants produced 26,005,000,000 kilowatt hours. In this work the steam plants burned 31,585,000,000 tons of coal, 12,045,000 barrels of fuel oil, and 23,722,000,000 cubic feet of natural gas. Also 141,976,000 kilowatt hours were produced by plants burning wood for fuel.



Here's the man you'll see in the personage of the chairman of the Glad Hand Committee—Joe Fowler from Memphis, Tenn. You will have no trouble picking him out; in fact he'll probably do the picking. For it's his business to know everything and everybody at the convention and see that all get acquainted

• CONTRACTING •

A Department Devoted to the Study and Discussion of the Practical Problems of Electrical Contracting

ALLAN COGGESHALL

Associate Editors

HENRY F. RICHARDSON

Time Stamps

[NOTE.—In last month's issue the last paragraph in the first column of the article on "Time Clocks," page 30, read: "In arranging the secondary clock circuit it is well not to put too many clocks on the same circuit, say not more than two—." This should read: "—not more than ten—."—The Editor.]

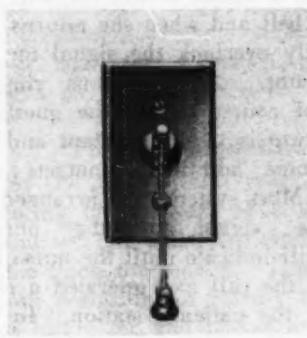
Even the best of the electrically operated time stamps available at the present time are none too reliable. Frequent repairs and overhauling are generally required. For this reason only the best should be used and it is a good plan to have one or more spare stamps on hand. Time stamps may be connected through insertion receptacles to facilitate removal for repairs.

Time stamps should not as a rule be directly connected on the same circuits as secondary clocks as trouble with one or the other will generally be experienced. Time stamps may be connected ten or twelve on a circuit, each circuit being operated through a separate relay or all being operated through a master relay with contacts for each circuit. Duplicate or spare relays are advisable.

There are two general types of time stamps. In one type the operating and printing mechanism is in the moving arm and in the other type the mechanism is in base. There is more room for the mechanism in the base and it will probably be less affected by the shock while in use. However the papers to be stamped must be turned face down which makes it more or less difficult to locate the impression accurately and this may sometimes be objectionable.

Time stamps may be operated either by current from a storage battery or by the lighting circuits where a reliable direct current supply is available. Both methods have been found satisfactory but if there is any question as to the reliability of the lighting current supply the storage battery is to be preferred. The circuit wires should not be less than No. 14 gauge; preferably No. 12 gauge or larger for long circuits particularly

if supplied by a low voltage storage battery.



Nurses Calling Station of the Toggle Switch Type

In and Out Recorders

Employee time recording systems may also be obtained with electrically operated clocks. These have the advantage, where the time clocks are electrically operated, that they will keep synchronous time with the other clocks and thus avoiding disputes.

Various Calling Systems

Means are frequently desired for signalling to a person whose exact whereabouts are not known. For instance the various department heads in a manufacturing concern may be at almost any part of their own or other departments and at some distance from their own telephone instruments. When such a man is called on the telephone, unless there is some signalling system, it may require several calls to locate him, with loss in time to the person calling and to the telephone operator.

In such cases a signalling system, operated by the telephone operator which will immediately notify a person that he is wanted on the phone will be of great advantage.

A simple system consist of colored lamps with a bell or buzzer to attract attention, and located at various points throughout the building so that they may be seen by the persons wanted from any place where they are likely to be. There may be a separate colored light for each person to be called with a corresponding switch at the telephone switchboard. The apparatus for such a

system is cheap but the wiring may be expensive if there are long runs.

Another system consists of a series of bells distributed so that at least one may be heard from any desired point and all bells operated in multiple by a ringing key or button at the telephone switchboard. The operator can ring a different number of times for each person. Both wiring and apparatus for this system are inexpensive but it has several disadvantages. The operator is very likely to make mistakes in ringing, through partial operation of the button or otherwise. The operator must also keep ringing a person until he has answered which may sometimes be several minutes.

There are several systems, the apparatus of which is on the market, in which bells or other signalling devices are located at various points and are operated by a device at the telephone switchboard which automatically rings the bells or other devices the number of times corresponding to the person wanted. This device continues to ring the bells as long as desired by the telephone operator. Such a system eliminates mistakes in ringing and requires little or no attention from the telephone operator. The Telecall and Autocall are devices of this character.

Doctors and Nurses Systems

In a large hospital where there are a number of doctors who may be wanted on the telephone some such system as described above is desirable. Groups of colored lamps or an annunciator consisting of numbers painted on glass with a lamp behind each are often located in each corridor. If a doctor who is wanted is in a patient's room, a nurse who sees the signal may notify him. However in a very large building and for a considerable number of doctors the annunciator may have so many indications as to be confusing and the wiring may be complicated and expensive and a code ringing device may be desirable.

At first thought it would seem that a code ringing device for this purpose

would not be permissible in a hospital on account of the disturbance due to noise. However the Telecall Company furnishes a special sound producing device consisting of a short metal bar arranged to be struck by a leather faced plunger and equipped with a resonator. This produces a musical tone which is not apparently loud or objectionable even when listened to close by but which can be distinctly heard a considerable distance and through closed doors. This system is in satisfactory operation in several large hospitals of the highest class and has in addition to the other advantages the further advantage that a doctor in a patient's room can hear his number without having to depend on a nurse.

Systems are also required in a hospital of any size by which a patient may signal a nurse when her services are required. There are a number of systems offered by various manufacturers. These generally consist of a signal device at each patient's bedside connected so as to operate an annunciator at the proper nurse's station. The device at the patient's bedside should be designed to be easily operated by the patient from the bed. In most systems a wall box of sufficient size is located close to the patient's bed. In some a flexible conducting cord with two or more conductors is extended from the wall box to the patient's bed with an operating button at the end. In others the operating mechanism is in the wall box with a heavy cord to the bed which operates the signal device in the wall box mechanically when pulled.

The device in the wall box may consist of simply a tumbler or toggle type switch with means for attaching a cord to the end of the operating lever and a small pulley or eyelet to guide the cord. An extra momentary contact is desirable as will be explained later. This type of operating mechanism is the simplest and least expensive and is in all ways equal to the type of system with the electric cord to the bed except that slightly more effort is required to pull the cord than to operate the button. However this is more an imaginary than a real objection and systems of this type are installed in the highest class hospitals. The type of system with the extension button to the bed has an also somewhat imaginary objection in that the patient may be shocked by the wires to the bed but it has a real objection in that maintenance cost of the cords is apt to be high.

As to Efficient Operation

It is desirable that the signal station at the patient's bed be so arranged that when it is operated the annunciator at the nurse's station will also operate but that the bell at this annunciator, which should be of the single stroke type, will operate once each time the station is operated. In some systems where a single stroke bell is used it will ring the first time the button is operated but after that the patient can give no further signal until the first has been answered and the station reset.

If the nurse is away from her station when a signal is sent she will not hear the bell and when she returns she may easily overlook the signal on the annunciator. A continuous ringing bell is of course out of the question. This feature is very important and requires some additional contacts and wiring. Most systems are arranged so that the signal at the nurse's station will indicate until the nurse has answered the call and operated a reset device at the patient's station. In the case of the "toggle" switch type mechanism this consists simply in lifting the operating lever to its off position.

Where the patient's bed is in a ward it will be desirable to install a signal lamp behind a bulls eye in each wall plate to indicate to the nurse the bed from which the signal was sent. In this way only one signal for the entire ward is required at the nurse's station and the wiring is considerably simplified.

Along this same line a signal lamp may be installed over each room or ward doorway on the corridor side to

indicate when a station in the room or ward has been operated. The signal at the nurse's station may then consist of simply a bell and a lamp which will stay lighted if any call remains unanswered. When the bell rings and the light lights the nurse knows she is wanted and leaves her room. The location from which the signal is sent is indicated by the lamps over the doorways. This has an advantage over the annunciator system in that if another call comes in while a nurse is answering a call she will probably see the light over the doorway without having to return to her station each time. In many cases this system will be found to be cheaper than one with an annunciator.

In some hospitals it is desired that the supervising nurse be provided with a signal from each nurse's station which will indicate as long as any call remains unanswered. This can consist of a lamp at the supervisor's office for each nurse.

It is generally desirable to operate such a system from the lighting service as the large number of lamps required will often consume considerable current and would require a large storage battery. Also the higher voltage gives better results as the drop in long runs would be objectionable with the usual low voltages for which a storage battery system is designed unless wires are of large size. Another advantage with lighting current is that the usual lighting insertion receptacle at each patient's bedside may be combined in the same outlet box and plate with the nurse's signal although the wiring should be entirely separate.

(To be continued)



Nurses Calling Station of the Extension Cord Type With Reset Button, Pilot Light and Insertion Receptacle in Combination Plate

CODE CHATS

BY HUBERT S. WYNKOOP, M.E.

Monthly Discussion of National Electrical Code Practices by Well Known Authority in Charge of Electrical Inspection, City of New York

Connecting 3-Way Switches

In order to save material and labor, some contractors attempt to bring both polarities to each switch. Old time inspectors automatically object to this because the Code used to prohibit it; but the newer men merely raise the question and suggest that perhaps the switch terminal spacings between parts of opposite polarity are not ample. I don't think we can base our objections on this ground. We certainly can justify a violation, however, by referring to the polarization rules—particularly No. 78b, fourth paragraph.

A little sketch of the wiring layout when both polarities are carried to each switch (in order to save one wire) will indicate instantly that at every alternate operation of one of the switches the screw shell of the socket becomes connected to the ungrounded, live pole.

Surface Receptacles at Baseboard

We have so much trouble with surface receptacles used in connection with metal raceway (wooden raceway is not permitted) run just above baseboards that we discourage their use, calling for the enclosed type instead. These are not appreciably more clumsy than the type we condemn, and they have the advantage that they cannot be scraped off by a table leg or broken down when used as a footrest. Our work is made easier when we require receptacles to be dead-front for such a location.

Open Work in Hanging Ceilings

Such locations over show windows are usually considered accessible, and the claim is advanced that the ceiling is so unsubstantial that no attempt will be made to use the space above for storage; therefore open wiring is appropriate because it will not be disturbed. But we find that paper boxes and other light material are often thrown in upon the wires. For this reason we disapprove open work.

Tinsel Cord

Look out for tinsel cord used to wire dental motors, boudoir lamps and other portable appliances where extreme portability and small size are desired.

We have refused to approve this product, for while it is satisfactory for telephone receivers, it is not moisture proof and there are no standards by which its suitability for electric light work may be judged.

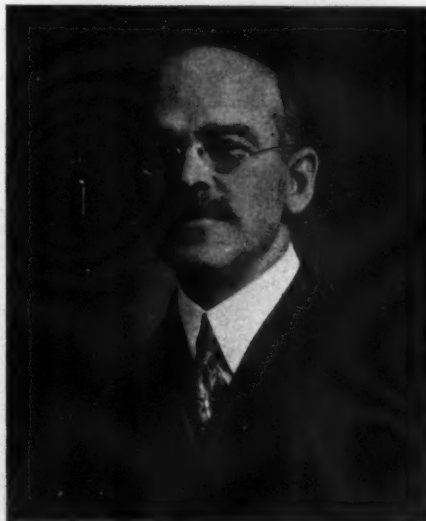
Dishonest Inspectors

It is very disheartening to be obliged continuously to defend inspectors from thoughtless and indiscriminate charges of graft. In every flock of fifty there will always be found some black sheep. That applies to every line of business. Taken by percentages then there are no more dishonest inspectors than there are crooked contractors, electrical engineers, machinery salesmen, purchasing agents, etc. Think this over.

Flat Armored Cable

At last after several years of experimenting on the part of a number of manufacturers a flat armored cable has come upon the market. This ought to prove desirable for surface work, as it lies straighter and makes a better appearance than the round type. But it is especially welcome as an answer to the insistent question: How shall we make concealed extensions of circuits in buildings of fireproof construction?

In order to meet the need for performing such work in a manner which will avoid channeling the fireproofing while allowing the concealment of the cable or conduit by the usual thickness of plaster, we have resorted to the ap-



R. A. L. Gray of the Glad Hand Committee, comes from Canada and represents the eastern half of the Dominion on the Executive Committee. He's a jolly good fellow and will be glad to tell you all about the good work they are doing up in Toronto to promote the best standards in the electrical business

proval in a few special cases of 5/16 inch flexible conduit containing one circuit wire—described last August in this column. The new flat armored cable has a minor external diameter equal to that of the 5/16 inch flexible conduit, and can therefore be used for this extension work without violating No. 26p or 28a.

Where to Ground a Secondary

The Code requires that the secondary be grounded at the service point or "near the transformer," thus allowing a choice between a house ground and a pole ground. Where a bus line is involved, administrative reasons require that if the house ground is chosen there must be a ground at each service point. We cannot play favorites; and it is not our privilege to decide that one owner must provide a ground connection while another need not. Furthermore if we permitted only one house ground for a number of houses and the building containing this ground was torn down, which one of the owners should be designated as the person to stand the expense of supplying a substitute ground for the common good? Therefore we say: Either a secondary ground at every service point, or a common ground at the transformers, installed and maintained by the company.

We have no objection however to the placing of one or more additional (service point) grounds on a secondary which is grounded at the transformer.

Material Composing Transformer Vaults

Don't let anyone get away with the statement that Code requirements for the construction of transformer vaults are too severe. When we objected some time ago to vaults having walls and ceiling composed of an inch of concrete on metal lath fastened to wooden studding, the owners were quite exercised over our severity. Quite recently, in the fire in a subway car, the arc burned through 1/2 inch of transite and 1/8 inch of steel before the current was cut off the third rail. One cannot predict how intense a fire in a vault may become.

Extra High Potential Wiring in Vaults

The Code does not cover this. And yet inspectors sometimes have doubts as to the details of the primary installation. The National Electrical Safety Code, issued by the U. S. Bureau of Standards, will serve as a guide in such cases.

•RETAILING•

A Department Devoted to Practical Suggestions that Help to Solve the Problems of Electrical Dealers

Attracting Trade Through Eyes of the Store

BY D. G. BAIRD

These Selected Window Displays of Other Electrical Stores May Help You Arrange Better Displays for Your Own Store

That the display window is the most effective as well as the most inexpensive medium of advertising has often been attested by merchants in every line. William Filene's Sons Company of Boston have frequently been quoted to the effect that they value their windows at \$100,000 a year. Lord and Taylor of New York City are said to consider their windows worth \$150,000 a year, and the J. L. Hudson Company of Detroit believes each of its many display windows is worth \$10 a day.

Of course there are department stores with thousands of articles to attract the eye—as well as the purse—of passersby but the electrical goods dealer should value his windows even more highly than they in proportion to the size of his business. He not only carries in stock many articles that make the very best possible displays but he is singularly privileged to get action into his displays by virtue of the articles he has to sell.

Stunts such as operating a washing machine or vacuum cleaner in the window are well known to all dealers and need no comment here. There is never ending suggestion in the real art of window trimming, however, and descriptions of displays featured in both large and small shops should be helpful to the dealer who is seeking ideas.

A Breakfast Display

The Spencer Electric Company, Polatka, Florida, showed what can be done with a small, plain window when it arranged a breakfast room display. A small breakfast table was placed in the center of the window and three plain, splint bottom chairs were drawn up to it.

The table was covered with a white linen cloth decorated with a vase of

seasonable flowers, and set for three. On one side of the table stood an electric percolator and an electric waffle iron while on the opposite side was an electric toaster all properly connected and ready for use.

In the center of the background was a handsome framed advertisement of the electric percolator while different advertisements of the same goods occupied the corners of the window near the floor. Above these latter were two small shelves, each in a rear corner of the window, each supporting an electric fan.

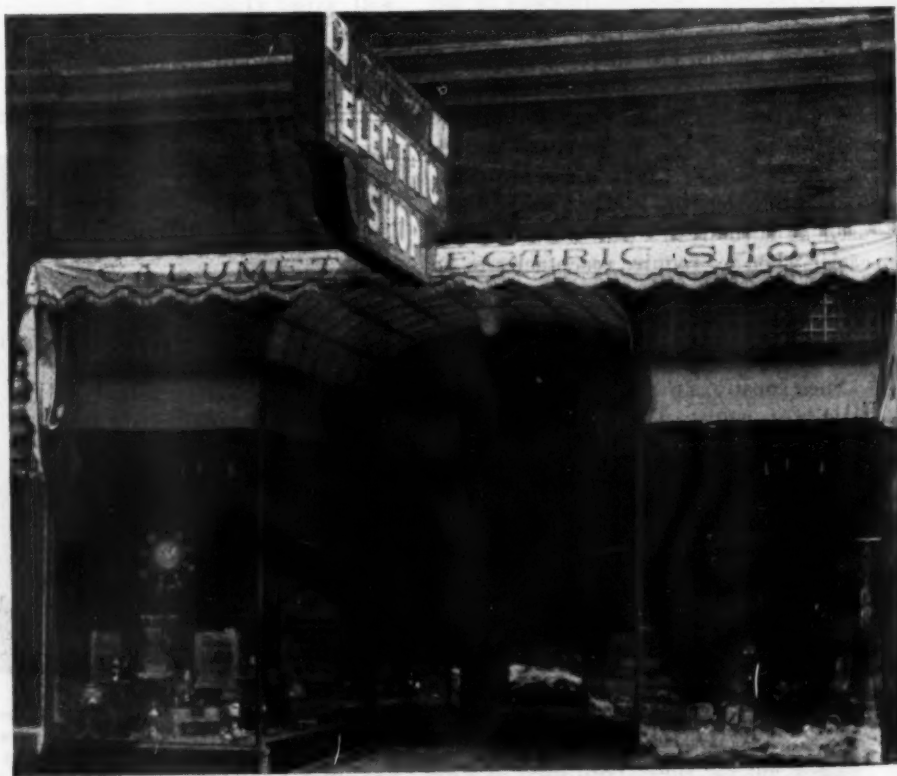
At one end of the window were placed a percolator and a toaster, each

on a separate mounting. At the other end a waffle iron and a flat iron were similarly placed. Painted cards gave the names and prices of the articles. Cardboard Mazda lamp containers spaced across the window in the immediate foreground completed the display.

Handsome Drapery

An unusually artistic display was arranged by the Edison Electric Shop, Dallas, Texas, by featuring nickel and electric-plated wares against a base and background of velvet and silk, and showing a judicious selection of floral decorations.

The two windows of this shop are



The Comparatively Small Size of the Calumet Electric Company's Store at Calumet, Michigan, is Offset by its Uncommonly Attractive Front



Window Trim of Central Electric Company, Detroit—Upper Windows Serve to Catch Attention of Distant Passersby

so constructed that they slant inward toward the entrance, making one end of each window narrower than its opposite end. This makes the displays stand out.

In the back corner of the narrow end of each window was placed a small potted shrub while a tall, wide mouthed vase in the other rear corner of each contained flowers and foliage that reached to the very ceiling of the low windows.

One window was devoted to dining room appliances while the other contained a diversified display of lighting fixtures and accessories. In the back center of the former window was a high fixture draped with dark blue silk supporting a large percolator of the stationary variety. In front of this, on lower fixtures, were other percolators of different styles, while miscellaneous devices were set on the floor on dark blue plush.

Single Window Display

The J. and M. Electric Company, Amsterdam, New York, having but a single window, utilizes it to excellent purpose by arranging a display which while miscellaneous is yet distinctive. In a recent trim this firm placed a washing machine in the center of the window with a large vase of flowers immediately in front of it.

A card leaning against the vase called attention to the distinctive features of the washer. To the rear and left of the

washer stood a vacuum cleaner flanked on the side opposite the washer by a handsome table lamp.

An electric sewing machine and another table lamp on the other side of the washer balanced the display, while small supplies were arranged on the floor in front of and at the sides of the central figure of the washer.

few electric shops have better display facilities than has the Central Electric Company of Detroit. This company has one very large window across the entire front of its shop with four smaller windows overhead forming a kind of two story display.

An elaborate system of colored lights concealed behind a valance flash alternate colors on the displays every six seconds. All windows are open at the rear, but paneled backgrounds of composition board are ornamental features and fill about half the space at the rear center.

The small upper windows are not noticed by pedestrians passing in front of the store but they catch the attentions of passersby on the opposite side of the street.

In a recent display this company featured in its larger window a center display of electric dining room appliances around which were grouped various devices. This central display was built up on three steps, covered with a light blue drape, each higher step being narrower than the one below it.

In the small upper windows were displayed a vacuum cleaner, a table lamp, a fan and an electric sewing machine. A huge percolator separated a flatiron and toaster. An electric heater was mounted on a table and a table lamp stood at the side.



This Display of the Spencer Electric Company, Palatka, Florida, Shows What Can be Done With Good Window Space

A Wife Saving Station

The Stroud-Michael Company of Detroit arranged a display that drew many smiles and provoked some deep thought on the part of husbands and wives.

In the center of the double doorway of the shop was placed an excellent imitation of a life saving station or lighthouse beside an electric washing machine. The tower was made of imitation brick composition board with the exception of the light chamber at the top which was white.

A light shown in the lighthouse part of the tower being connected with the washer at the base in such a manner that as the washer oscillated it alternately made and broke the circuit and caused the light to flash on and off every few seconds. On the wall of the tower in white letters was the designation: "Stroud-Michael's Wifesaving Station."

A window display at the side featured washing machines and vacuum cleaners both dismantled and set up, and suitable display cards pointed out the excellent features of the appliances. This connected up well with the wife-saving idea.

Miscellaneous Displays

An unusually distinctive showing of

miscellaneous articles was made by the Newberry-Bendheim Electric Company, Los Angeles. Beginning at a point slightly to the left of the front corner of the window a strip of black velvet some sixteen inches wide was ruffled diagonally across to the opposite corner of the window. Two other strips were then placed parallel with this, leaving the floor bare in other places.

On the floor in the front left corner of the window was a vibrator in an open case and an electric heater. On the short strip of velvet across this corner were three chafing dishes of different sizes, the smallest being nearest the front.

Between this strip and the central one were miscellaneous supplies. On the central strip of velvet were other articles. Then on the floor were automobile spark plugs, electric fans in a row, with a table lamp at the end. On the velvet across the right rear corner was a display of automobile accessories.

Small Shop Has Handsome Front

The photograph of the Calumet Electric Shop, Calumet, Michigan, unfortunately does not show sufficient detail to reveal the excellent display featured in the two windows, but it is an example of an unusually handsome front of a

comparatively small electrical shop.

The arched entrance with the offsets of the two windows about two feet deep just at the doorway between them, together with the ornamental glass work at the tops of the windows will appeal to any one considering the building or remodelling of a pair of display windows.

Attractive Easter Display

A very attractive Easter display was arranged by The Home Electric Shop, Washington, D. C., which depended largely on the artistic use of crepe paper for its effectiveness. Across the background at a height of some two and one-half feet from the floor of the window stretched a crepe paper border of a width equal to the distance from its bottom to the floor.

This paper was decorated with floral designs and with a row of Easter rabbits walking upright on their hind legs and pulling little wagons driven by baby chicks on which were strapped single eggs. The floor of the window was also covered with crepe paper in Easter colors. The various appliances were artistically arranged, and a cutout figure of a smiling woman handing out electric lamps from a box stood against the background toward the left center of the display.

Sell the Housewife Complete Electrical Units

BY JAMES L. MAHON

Advertising Manager of The P. A. Geier Company, Cleveland, Ohio, Tells Why Every Home Should be More Completely Equipped With Electrical Servants

"I believe that the biggest and most convincing argument of all for the sale of electrical appliances in the home is being overlooked," said a veteran merchandiser recently. And after observing the astonishment his remark had created, he went on:

Most dealers are taking a halfhearted attitude towards electrical sales. People have to be educated to the use of the appliances, it is true. The widespread adoption of these devices cannot come all at once. But that is no reason why a man should feel satisfied and proud of himself for having sold a woman a paltry washer and cleaner, or one or two other appliances. The fact is that complete electrical household service, with all its comfort and convenience, costs the housewife less than half what it costs to keep one maid.

We men have been going at this proposition in a left handed way. We haven't taken the point of view of the housewife. We haven't gotten to the inside of the domestic proposition. We must under-



The Electric Broom Saves the Housewife Backachey Drudgery

stand that we are dealing with the entire labor problem of the home.

There is absolutely no reason in the world why families should not regularly install their electrical equipment complete, just as they install their plumbing complete. To do so is plainly an economy.

Can't Compare Old and New Ways

Sit down and carefully compare the old time domestic service and the new kind which operates by wire, and you will be astonished at the advantages which the electrical way of working possesses.

Maids have been receiving as high as fifteen dollars per week, in addition to room and board, although in the past year their wages have gone down so that seven or eight dollars is perhaps a fair average for the amount of cash

which they are paid weekly in the city. Their meals and the value of the room which they occupy bring their actual receipts in cash and kind to nearly twice this amount. And almost any housewife of experience will testify that her maid has cost her a great deal more in materials wasted, in loss and in breakage. This may be due in many cases to the mistress' ill management as much as to the maid's carelessness, but the fact of the loss remains.

Let us put down, as a conservative estimate, \$14 per week for the cost of keeping a domestic. Take an average family of four. If they have a real electrical home, they will not only wash the clothes electrically, but also the dishes. They will have not merely electric irons, but also an electric ironer, to save sending the big pieces to a commercial laundry and to save most of the drudgery of ironing the smaller flat pieces by hand.

One Appliance Sells Another

They will not stop at electric grills, a toaster, and percolator, but they will have an electric range and perhaps an electric fireless cooker also, for the ease and comfort and better cooking which they make possible. The cleaner will be a matter of course, and so will the electric heater and the fans and a few other small electrical comforts.

Most people would call all this luxury, and hold up their hands in horror at making such an expensive outlay. They don't stop really to take stock



No Housewife Ever Had a Maid More Faithful Than the Electric Fireless Cooker

of the situation. As a matter of fact, the total cost per week of owning and using all these electrical conveniences is only about \$5.44.

The total cost of the appliances he placed at \$878.80, with the remark that it was a liberal figure. The cost of current consumed per week in the family of four, at the rate of ten cents per kilowatt hour, the average charge is as follows:

Iron, 5 hours at 6c per hour.....	\$.30
Washer, 2 hours at 2c per hour....	.04
Ironer, 4 hours at 2c per hour....	.08
Cleaner, 2½ hours at 1½c per hour	.04
Dishwasher, 1¾ hours at 2c per hour04
Fireless Cooker, 4 hours at 6c per hour24
Radiator, 7 hours at 3c per hour..	.21
(Fans in summer consume less than this)	
Warming Pad, 2 hours at 8-10c per hour02
Vibrator, ½ hour at 8-10c per hour	.00½
Grill, ½ hour at 5c per hour.....	.02½
Percolator, 1 hour at 2½c per hour	.02½
Toaster, ½ hours at 5c per hour..	.02½
Range, for four persons at 10c per day per person.....	2.80

Total	\$3.75
Total cost of appliances divided over period of ten years.....	1.69
Total "wages" of electric servants per week.....	5.44

Five dollars and forty-four cents as compared with \$14. Comfort and convenience and peace of mind as over against the uncertainties of handling a maid, a maid who would very seldom do the washing, or all the ironing, or,

in short, perform anything like the hard labor which electricity does. She is not nearly so reliable, and the family with whom she lives lacks the real privacy which the home circle should have.

There is no reason why a large proportion of families should not invest a lump sum in the devices at the time when they build or buy a house. Six or eight hundred dollars is a comparatively small addition to the sum they are spending or borrowing at that time. It does not seem like nearly so much of a burden as it would if they strung their purchases out and took a long time to decide on whether or not to buy each new device.

No one buys the plumbing of his home piecemeal. You do not start in housekeeping with a bathtub and a few washbowls and try to get along without a kitchen sink until you can afford it. "Affording" things is largely a matter of one's state of mind. If the man of the family had the housework to do, ten chances to one, he would "afford" complete electrical equipment at the outset. It is really ridiculous to think of the number of homes which boast automobiles and lack electrical service.

The reason that electrical homes are not more universally the rule is merely that the matter has not been presented plainly, simply, and in its entirety to the householder. People are going to acquire this attitude themselves in the course of a few years—why not help the process along a little sooner? Go out and inquire and get after the people who are building and buying and remodeling houses.



In the Boudoir Electricity Ministers to the Housewife's Personal Comfort



Experiment With Your Cleaner at Home and Discover New Ways of Using It

ORGANIZATION ACTIVITIES

STATE CHAIRMEN AND SECRETARIES

State	Chairman	Secretary	State	Chairman	Secretary
ONTARIO, CANADA:	Harry G. Hicks, 203 Church St., Toronto	J. A. McKay, 24 Adelaide St., W., Toronto	MARYLAND:	A. C. Brueckmann, Keyser Bldg., Baltimore	C. Philip Pitt, 7 St. Paul St., Baltimore
BRITISH COLUMBIA:	C. G. Carter, 739 Hastings St., Vancouver	P. F. Letta, 3044 Granville St., Vancouver	MICHIGAN:	Henry Roseberry, 41 Pearl St., Grand Rapids	H. J. Shaw, 613 Lincoln Bldg., Detroit
COLORADO:	J. Fischer, 213 15th St., Denver		MINNESOTA:	John M. Roberts, 1589 Selby Ave., St. Paul	Arthur P. Peterson, 2395 University Ave., St. Paul
CONNECTICUT:	Tryon Smith, 247 State St., New London	Geo. M. Chapman, 43 E. Main St., Waterbury	MISSOURI:	Oscar L. Fickie, Kansas City	A. J. Burns, 533 Delaware St., Kansas City
DISTRICT OF COL.	Frank T. Shull, Conduit Rd. and Elliott St. Washington	H. R. Harper, 635 D St., N. W., Washington	NEW JERSEY:	Geo. E. Davis, 23 Central Ave., Newark	Elmer D. Wilson, 23 Central Ave., Newark
FLORIDA:	T. E. Satchwell, Jacksonville	M. A. Ladd, 108 W. Bay St., Jacksonville	NEW YORK:	F. A. Mott, 29 St. Paul St., Rochester	F. M. Farley, 15 West 37th St., New York City
INDIANA:	T. F. Hatfield, 102 S. Meridian St., Indianapolis	A. I. Clifford, 507 Odd Fellows Building, Indianapolis	OHIO:	C. L. Wall, 212 S. Main St., Akron	Walter R. Keifer, 939 E. McMillan St., Cincinnati
IOWA:	Louis L. Corry, 510 Brady St., Davenport		PENNSYLVANIA:	R. W. Keck, Allentown	M. G. Sellers, 1518 Sansom St., Philadelphia
KANSAS:	C. S. Smallwood, 1017 N. 5th St., Kansas City	Arthur Tucker, 619 Jackson St., Topeka	TENNESSEE:	P. W. Curtis, Chattanooga	J. A. Fowler, 10 S. Second St., Memphis
LOUISIANA:	James M. Maloney, 807 Poydras St., New Orleans	R. S. Stearnes, 336 Camp St., New Orleans	WISCONSIN:	L. G. Ross, 1305 Tower Ave., Superior	H. M. Northrup, 25 Erie St., Milwaukee

LIST OF LOCAL ASSOCIATIONS AND MEETINGS

State and City	Local Secretary	Street Address	Time of Meet.	Place of Meet.	State and City	Local Secretary	Street Address	Time of Meet.	Place of Meet.
ALABAMA					NEWARK	Geo. E. Davis	23 Central Ave.	1st Monday	23 Central Ave.
Birmingham	I. E. Langerd	1920 1/2 4th Av., N.	Wed. 8 p. m.		PATERSON	H. M. Demais	88 Ellison St.	Last Friday	P. S. Bldg.
Mobile	Frank Sigler	Sigler Elec. Co.	Wed. 5 p. m.	Members' Offices	NEW YORK				
ARIZONA					Albany	Chas. Russell	Box 390	3d Thursday	Pekin Rest'm
Phoenix	A. H. Rosenberg		Tues. 4 p. m.	Bldrs. Ex.	Binghamton	A. H. Hyle			
CALIFORNIA					Brooklyn	H. F. Walcott	44 Court St.	1st Mon.	Cham. Com.
Berkley	J. M. Gregory	Pacific Bldg.	Fri. 8 p. m.	Pacific Bldg.	Buffalo	E. P. McCormick	555 Wash. St.	Friday	507 Elec. Bldg.
Covina	F. Rambo		1st & 3rd Mon.	Ontario	Cooperstown	B. B. St. John	Oneonta	3d Tues.	Vanon
Long Beach	O. W. Newcomb	308 E. 4th St.	Tues. Ev'g.	Spaulding's	Endicott	A. H. Hyle	Binghamton	Tues.	Cham. Com.
Los Angeles	Irvin C. Bruss	118 E. 3d St.			Glens Falls	W. F. Combs	21 Main St. S.		
Oakland	J. Gregory	Pacific Bldg.	Tues. 8 p. m.	Pacific Bldg.	Jamestown	Henry Lund	309 Main St.	3d Mon.	Mifra. Am's
San Francisco	A. Elipias	165 Jessie St.	12 Noon, Thurs.	States' Cafe	Kingston	M. C. Rivenberg			
Van Nuys	Los Angeles Am		Tues. 6:30 p. m.	Pin Ton Cafe	Nassau-Suffolk	H. J. Wick	Bay Shore		
COLORADO					New Brighton	E. L. Taylor	Tottenville		
Denver		403 Mining Ex.	1st and 3rd Fri.	DC & EL Aud't.	N. Y. Sec. No. 1	J. P. Ryan	26 Cortlandt St.	1st Thurs.	Penn'a Hotel
Manitou			Friday Nights	Col. Springs	Independent	C. J. Christensen	101 W. 83d St.	2nd & 4th Wed.	226 W. 50th St.
Pueblo	H. Ashcraft		2nd Tues.	Commerce Club	Sec. No. 3	L. F. Luedicke			
CONNECTICUT					Olean	H. C. Thuerk	Olean L&P. Co.	Monthly	Various Stores
Hartford	Mr. Cook	Hart & Hegeman	1st Wed.	Hartford	Oneonta	B. B. St. John	29 St. Paul St.	3d Thursday	Aggleston Hotel
New Britain	F. Mulvehill		On Call	192 Grand St.	Rochester	H. F. Janek	S. Glen Falls St.	1st & 4th Mon.	Aggleston Hotel
Waterbury	D. Neth	Conn. Lt. & P. Co.			Saratoga Springs	W. F. Camp	P. O. Box 809	2d & 4th Thurs.	Aggleston Hotel
DIST. COL.					Schenectady	Mr. Spengler	McClellan St.	Subject to call	
Washington			2d Thurs.	Dewey Hotel	Syracuse	H. N. Smith	Tottenville, S. I.	1st & 3d Monday	St. George, S. I.
FLORIDA					Tottenville	W. Taylor	First St.	1st Tues.	Gas Office
Jacksonville	W. L. Joseph	155 E. Forsyth	1st Tuesday	206 Realty Bldg.	Troy	H. W. Boudey	Gray Elec. Co.	1st Tues.	Elks' Club
Miami	C. E. Pullen	Pullen-Zoli Co.			Union	Mr. Hall	White Plains		
GEORGIA					Westchester	I. W. Austin	Roth Block	3d Fridays	Utilities Bldg.
Atlanta	Cheney Emerson	Irs & Baker Sts.	Thurs. 12:30	Dafodil Res.	Woodmere	L. B. Smith	Westbury	Monthly	
ILLINOIS					Yonkers	Mr. Mayer	Manor House Sq		
E. Moline	E. J. Burns	Rock Island	Once a month	Bldrs. Ex.	OHIO				
Chicago	J. W. Collins	179 W. Wash. St.	2nd & 4th Wed.	Lmbrms Ex.	Akron	C. L. Wall	212 So. Main St.	Monthly	2d Nat. Bk. Bldg.
Decatur	E. O. Weatherford	114 E. Wm. St.	1st Wed.	Y. M. C. A.	Bellaire	J. Blumenberg	Bellaire	Call of Sec'y	Bellaire
Springfield	C. A. Meadow	407 E. Adams St.	Sat. 2 P.M.	Archie Bldg.	Cincinnati	W. R. Keifer	939 E. McMillan	Tues. 3 P. M.	Cham. of Com.
E. St. Louis	C. F. Broderick	317 E. Bro'dw'y	1st & 2nd Tues.	Post Hall	Cleveland	Geo. D. Bury	Elec. League	1st & 3d Thurs.	Hotel Statler
La Salle	Ed. Blaine	219 18th St.	1st & 3rd Mon.	219 18th St.	Columbus	O. A. Robbins	Builders' Exch.	2d Wed.	Builders' Exch.
Rock Island	E. J. Burns	613 Tyler St.			Dayton	O. J. Osmond	41 Fountain Av.	1st & 3d Mon.	Various
Streator	Wm. Schroder				Springfield	J. R. Yeot		On call	
INDIANA					Steubenville	D. C. Hartford		1st Wed.	Nat. Ex. Bldg.
Evansville	I. A. Welburn	404 Main St.	Ev. Fri.	Y. M. C. A.	Toledo	F. J. Lucas	Builders Exch.	On Call	M'f's & M'f's At
Gary	A. B. Harris	570 Washington	1st & 3rd Thurs.	Comm. Club	Youngstown	F. F. McBride		Mon. Noon	Y. M. C. A.
Indianapolis	C. L. Skillman	29 S. Capitol	1st Tues.	B. & T. Ex. Bldg.	OHIO				
South Bend	Mr. Moran, Jr.	832 N. St. Louis	Wed. Ev'g.		Portland	F. R. Whittlesey	212 Henry Bldg.	2d & 4th Monday	Cham. of Com.
Warsaw	F. E. Strauss	120 W. Market St			PENNSYLVANIA				
IOWA					Allentown	A. Hill	Bethlehem	Monthly	
Davenport	Louis F. Cory		Mon. 6 p. m.	Chamber Com.	Bethlehem	A. H. Hill	510 W. Main St.		
Sioux City	F. H. Abbot		Mon. 6 p. m.	Jackson Hotel	Catawquus	W. T. Kleppinger		Last Thursday	
Waterloo	H. L. Hileman	600 Bluff St.			Dubois	C. E. Blakeslee		Monthly	
KANSAS					Easton	C. E. Hill	Bethlehem	Monthly	
Topeka	H. S. Lee	816 Kansas Ave.	Mon. Noon	Elk's Club	Erie	Earl Stokes	Bldrs. Exch.		Bldrs. Exch.
Wichita	L. A. Harris	446 N. Main	Ev. Tues. 7:30	United Elec. Co.	Lancaster	A. Deen		3rd Friday	Und'w'r's Office
KENTUCKY					Philadelphia	M. C. Sellers	1528 Sansom St.	2nd Thurs.	1518 Sanson St.
Louisville	Walter Diecks	528 W. Jefferson	2-4 Thurs.	B. of T. Bldg.	Pittsburgh	Joe Jaques	McCance Bldg.	1st Friday	Various
Paducah	W. R. Kitterjohn		Last Thurs.		Seranton	A. J. Fowler	Bd. of Tr. Bldg.	Tues.	Zenke's
LOUISIANA					St. Marys	C. E. Blakeslee	Dubois	Mon.	
New Orleans	R. S. Stearnes	336 Camp St.	1st Weds.	Teocalli Hall.	Wilkes-Barre	Ambrose Saricks		2d & 4th Thurs.	
Shreveport	Percy Elliott	Elliott El. Co.	Ev'y Monday		YORK	A. E. Harris	E. King St.	2d & 4th Tues.	
MAINE					SOUTH CAROLINA				
Portland	N. S. Boothing	222 Middle St.	On call		Columbia	E. L. Cashion	Sunmer, S. C.		
MARYLAND					Greenville	E. C. DeBruhl	Ideal Elec.		
Baltimore	C. P. Pitt	7 St. Paul St.	3d Tues.	Eng'rs. Club	TENNESSEE				
MASSACHUSETTS					Chattanooga	Carl Schnider	412 Kirby Av.	Wednesday	Manhattan Ck
Boston			3d Thurs.	Boston City Club	Knoxville	H. M. Moses	615 Market St.	Noons.	Rwy. Lt. Ca
Fitchburg	R. M. Gowell		1st Mon.	Fay Club	Memphis	H. A. Street	285 Madison Av.	Monthly	Aliya Cafe
Haverhill	H. W. Porter	24 West St.	2d Mon.	El. Lt. Sta.	Nashville	J. B. Mullen	Aracade	Ev. other Wed.	Tularis Hotel
West Medford.	H. J. Walton	Malden El. Co.	Monthly	Various	TEXAS			1st & 3d Wed.	
Worcester	L. H. Treadwell	681 Main St.	2d Thurs.	44 Front St.	Dallas	H. A. Brewster	409 S. Eway	On call	409 S. Eway
MICHIGAN					Salt Lake City	Gus. Forsberg	69 E. 4th So.		Newhouse Hotel
Battle Creek			Ev'y oth'r Tues.	Post Tavern	VINCINIA			Wed. 12:15 p.m.	
Detroit	H. Shaw	613 Lincoln Bldg	Last Thurs.	G. A. R. Hall	Lynchburg	W. M. Elliott	Lynchburg	1st Thurs.	Local Stores
Flint	J. Markle	718 S. Saginaw			Norfolk	K. D. Briggs	Aracade Bldg.	2d Tuesday	Old Col. Clk
Grand Rapids	Henry Romyn	40 Ionia Av. N.W	Tues. Noon	Ass'n of Com.	Richmond	W. A. Cutlett	Jeff. & Grace Sts	Wednesdays	
Kalamazoo	M. Randall	Exch. Place		Cham. Com.	WASHINGTON				
MINNESOTA					Seattle	J. R. Barry	Pantorges Bldg.	Thursdays	Elks Club
Duluth	Alfred L. Foster	210 W. 1st St.	1st Tuesday	Builders' Exch.	Green Bay	John B. Tingley	223 Cherry St.	1st Thurs.	Nicolet P'dt
Minneapolis	A. P. Peterson	2395 University Ave., St. Paul	2d & 4th Tues.	Elk's Club	Milwaukee	Thos. W. Nixon	719 Majestic Bld.	2d Tuesday	Maryland Hotel
St. Paul			6:30 P. M.		Racine	F. H. Patrick	1545 W. Blvd.	1st Tues.	Racine Bldg.
MISSOURI					CANADA				
Kansas City	R. L. Hutton	212 Admir'l Blvd	Tues. Evs.	University Club	Guelph	C. E. B. Grinyer	43 Quebec St.		
St. Louis	Ben Grieb	904 Pine St.	1st Wed.	Am. Hotel	Hamilton	K. J. Donoghue	c/o N. Elec. Co.		
NEBRASKA					Kitchener	O. S. Lyles	c/o Doerr El. Co.		
Lincoln	G. G. Kingham	142 S. 12th St.	1st & 3d Mon.	C. of C. Bldg.	Ottawa	A. C. McDonald	128 Osgoode St.	Mon. 8:00 p.m.	Elec. Insp. Office
Omaha	J. B. Coningham		1st & 2nd Mon.	Various	Toronto	J. A. McKay	24 Adelaide St.	2d Tues.	Bd. of Trade
NEW HAMPSHIRE					Vancouver	P. F. Letta	3044 Granville St.	Ev'y Tuesday	724 Pacific Bldg
Portsmouth	F. C. Hatch	Kittery	2d & 4th Wed.		Windsor	A. H. Cook	609 Moy Ave.		
NEW JERSEY					Niagara Penins'r.	W. H. Mackenzie	St. Catharines		
Atlantic City	F. P. Wright	16 Ohio Ave.	1st Thursday	Malatesta Hotel					
Jersey City	Wm. Doellner	743 Bergen Ave.		P. S. Bldg.					
Long Branch	Chas. Maggs	462 Bath Ave.	1st & 3rd Mon.	Comm. Hotel					

First Conference of Electric Leagues and Clubs

Large Number in Attendance at Association Island
Last Month Came From all Sections of Country

On Tuesday, September 5, there came together at Association Island a gathering of representatives of local clubs and leagues in the electrical industry from



"See You at Cincy" Say Beltzhooover, Freeman, Brett, and Curren from the Convention City

all sections of the country. The event was held under the auspices of the Society for Electrical Development with a view to furthering the interests of the Joint Committee on Business Development.

Coöperation was the keynote of the affair. Representatives from all branches of the electrical industry were present, and it is pleasing to note that more than ten percent of the delegates were electragnists.

Association Island is a sixty-five acre tract that sticks its head above the water a few miles distant from the eastern shores of Lake Ontario off Henderson Harbor, New York. It is a camping ground—a summer play ground—and here the delegates were able to combine business with pleasure, without neglecting either one. Two or three business sessions were held every day, and between times the delegates were free to indulge in fishing, boating, golf, baseball, tennis, or the usual indoor sports



Lily, the Island Goat, With Her Favorite Companions

that exercise the mind and the pocket-book, as well.

An introductory session was held on Tuesday afternoon, at which talks were made by W. W. Freeman, president of the Society; E. W. Lloyd, chairman of the Joint Committee; Fred Feiker, associate of Secretary Hoover; W. E. Robertson of the Supply Jobbers; E. W. Rockefeller and Wm. L. Goodwin.

On Tuesday night the opening session of the conference was held, and Jack North told the delegates how the Cleveland Electrical League was organized



Boodles on Guard

and how it continues to operate successfully. Then came similar reports from various localities. As proof of the intense interest in local league work it was noted that each speaker was closely questioned and asked to explain every detail of local organization.

During the next few sessions reports of local activities were submitted by General Spencer, Secretary-Manager of the St. Louis Electrical Board of Trade;



General Spencer of St. Louis

J. H. Van Aerman of the Pittsburgh League; E. C. Headrick of the Denver Coöperative League; R. L. Balzari, representing two Pacific Coast movements—the California Coöperative Campaign and the San Francisco local organization; P. H. Booth of Los Angeles; Walter Neumuller of New York City; B. E. Rowley of Salt Lake City—the Rocky Mountain League; M. E. Arnold of the Philadelphia Electric Club; E. W. Lloyd and J. W. Pierce of Chicago; and W. E. Robertson of the Buffalo Electric League.

Among others present were Charles



Four Celebrities: (1) E. C. Headrick, Chairman of Denver League; (2) C. M. Beltzhooover, Chairman Cincinnati Convention Local Committee; (3) Miss Carroll, Who Will Address Cincinnati Convention; (4) Frank Watts—Everybody Knows Frank. They Were all at the League Conference

M. Beltzhoover, chairman of the local convention committee, and J. M. Brett, one of the committeemen of Cincinnati; J. J. Caddigan of Boston; J. F. Orr of the Idaho Power Company, Boise; L. L.



Zim and Mac Direct the Movies

Strauss, chairman of the Metropolitan District, New York; Hugo Tollner and H. F. Walcott of the Brooklyn Contractors' organization; A. Lincoln Bush, president of the Independent-Associated Contractors of New York City; A. H. Pollock, Wynne Jones, and Al Goldman of the New York Electrical League; T. I. Jones of Brooklyn, and many other celebrities of electrical circles.

During the four days of sober and serious thought devoted to local organization work, there was found time for



Boodles Leads Rex Cole Out of the Wet After Dousing Officer Small

a little play on the side. So that this feature of the conference could not be carried to excess, a police force was organized, with Frank Gale acting as chief—familiarily called the cheese of police. P. B. Zimmerman was the assistant cheese, and when Rex Cole in a fit of merriment tipped Zim over on the lawn, Rex told him that he had no business being a cop if he didn't like to be heckled. But another cop got even with Rex by dipping him in the lake, after which Rex returned the compliment.

Tents are provided for sleeping accommodations at Association Island. K. Fitzpatrick of Dayton, Ohio, didn't know this when he wrote for his reservations, and so he ordered a room with bath. He was advised by letter that only tents were used for sleeping quarters. He wrote back that such arrangements were not at all satisfactory to him and he must have a room with a bath.

During the journey of Mr. Fitzpatrick, as he stopped at one of the way stations enroute, he wired that he would arrive at a certain hour and to please have his room and bath ready. When Bill Goodwin got this wire he showed it to Boodles, his Boston bull terrier. Boodles shook his head and laughed, and then a happy thought occurred to him. Why not consult Lily, the Island goat. Bill consented, so Lily was called into the conference. Following the instincts of her sex to arrive at quick decisions, Lily told Bill and Boodles that the solution was as plain as Wynne Jones' scalp.

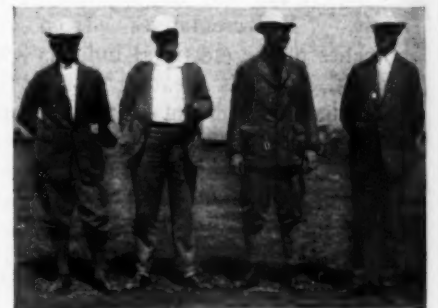
Winking at Boodles, Lily reminded Bill that he was the one who had insisted on calling the place Camp Cooperation, so why not dedicate by cooperating with Fussy Fitz, as she humorously dubbed the Dayton delegate.

With the aid of Boodles, who wields a Svengali influence over Bill, Lily persuaded Bill to appoint a reception committee to welcome the man from Dayton and to escort him to his room and bath.

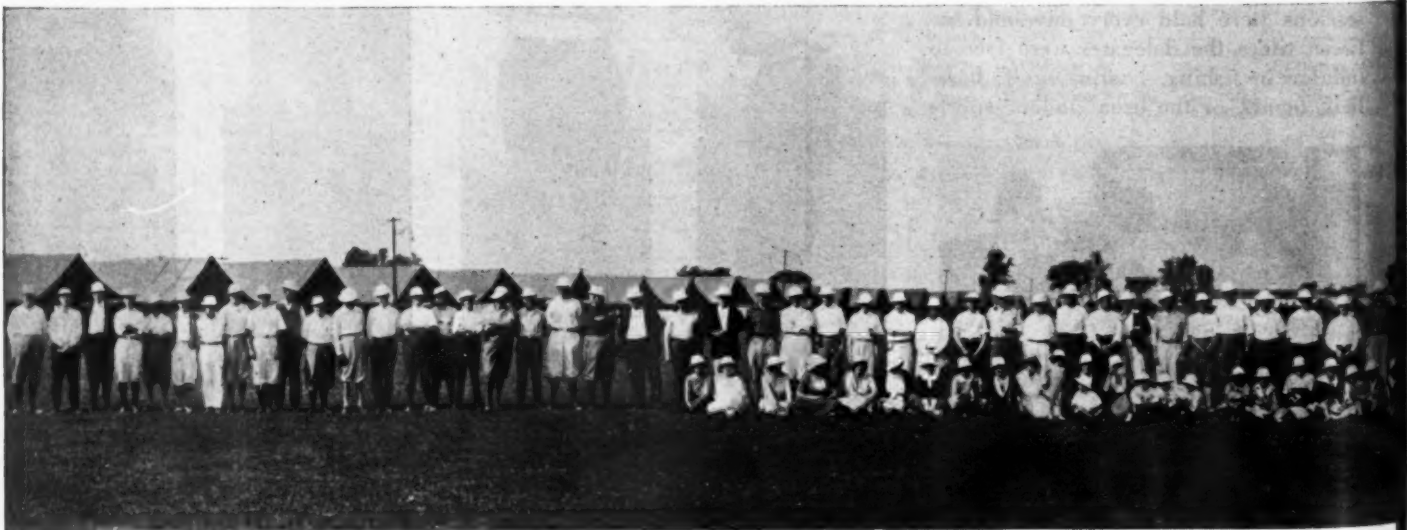


Link Bush, Al Berry and Jack Caddigan Look Pleasant for Tom Chantler, the Photophriend

Boodles and Lily enlisted the services of Harry Kirkland and some other congenial chums; the brass band was called out to head the delegation; and after Lily and Boodles escorted their friend Fitz up the gang plank, the procession



Western Quartet: Cowley of Utah, Orr of Idaho, Balzari of Frisco, and Booth of Los Angeles



After the Flag Raising Ceremonies of the League Conference at Association Island

move. Lily first led them to the tent which she had prepared for her guest, and after leaving his luggage there, Boodles and Harry and Lily, and other dogs and goats—as the Dayton delegate calls them—led the way to the bath.

Lily said that as the earth is God's footstool, so old Lake Ontario is one of God's bathtubs, to which Boodles assented. Forthwith Mr. K. Fitzpatrick of Dayton, Ohio, was flung into his bath by the coöperative committee, amid wild exclamations of joy from the assembled multitude.

Thus was the spirit of coöperation installed at Camp Coöperation; and thereafter it was exemplified in every way throughout the entire length of the conference. There was some criticism

expressed by Sam Chase, Bob Keck, Jim Orr, Dick Turpin, Frank Watts, and others, at the lack of coöperation by Sawyer & Morrow, the orange juice dispensers, but Lily explained that this was due largely to the commendable vigilance of the efficient police force, working in coöperation with Boodles.

Seriously, however, the league conference was a success. It was ably managed, replete with constructive thought, and should result in largely benefitting the entire electrical industry through a careful plan of local coöperation throughout the country.

The following resolution submitted by W. E. Robertson of Buffalo, a member of the Joint Committee, which was endorsed by the Conference, should enable the Society to proceed along the proper lines for the accomplishment of immediate results:

Whereas, The Society for Electrical Development, finding the need of a medium through which, by spoken word, messages of moment to the industry, may be quickly transmitted to substantial groups of men in the larger centers of population and through them to the smaller communities; and

Whereas, The lack of such a medium at this time in promoting the work of the Joint Committee for Business Development, to which The Society for Electrical Development has pledged its support, is particularly evident; and

Whereas, While Electrical Leagues and Clubs have existed for some time in certain cities of the country, their efforts have never been co-ordinated or influence used in support of matters of national significance to the industry, and that this is the first meeting of representatives of leagues and clubs ever held; and

Whereas, Out of the interchange of ideas and experiences made possible by this gathering, we have gained knowledge as to our limitations as well as opportunities for greater service, we

First: Congratulate The Society for Electrical Development on its foresight in calling together for conference and ex-



Three Graces That Graced the Occasion

change of experiences, representatives of electrical leagues and clubs throughout the country;

Second: While recognizing the limitations of the leagues and clubs for all purposes, that for the purpose in mind no better medium has yet been created or is contemplated and therefore these should be used;

Third: That leagues should be established and their work fostered in every community large enough to support one;

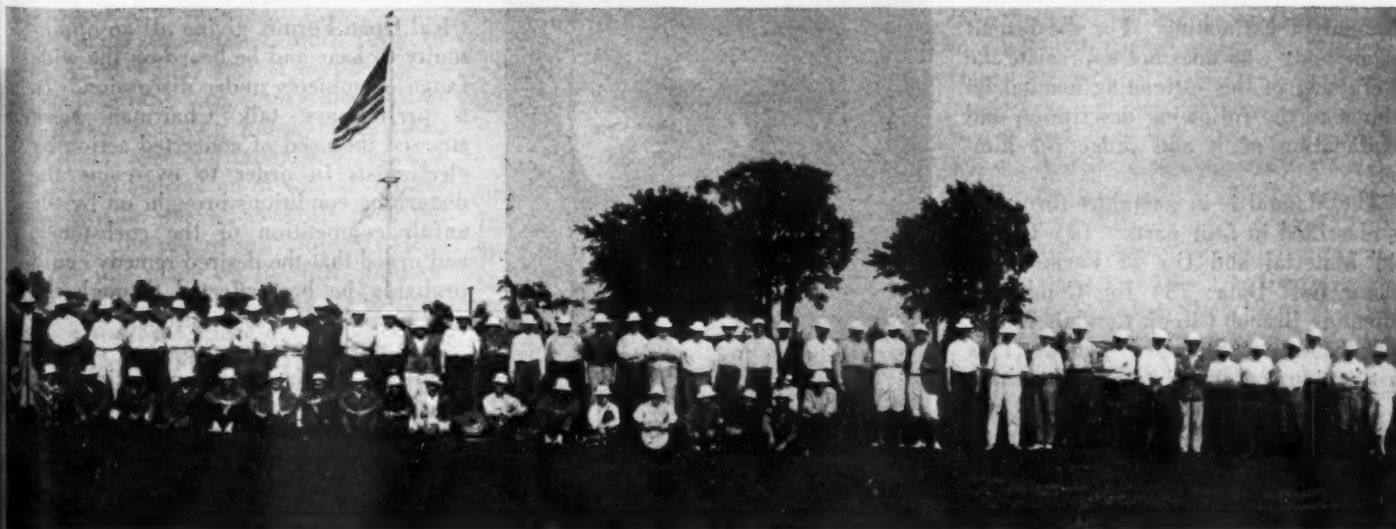
Fourth: That for this purpose organized effort is needed and should be supplied by The Society for Electrical Development;



Fitz's Bathtub Was Provided With a Life Belt



Harry Walcott and Hugo Tollner From Brooklyn



Note That Bill Goodwin is Playing Both Ends Against the Middle in This Picture

Fifth: That The Society for Electrical Development use its best efforts in directing the attention and securing the support of leading men in all branches of the industry in establishing these leagues;

Sixth: We pledge our support, first, in strengthening and broadening the usefulness of the leagues we represent; second, in helping to establish similar leagues in other cities; third, in giving hearty and continued support to the Joint Committee for Business Development.

Issues Unique Sales Book

A sales book of unique distinction has just been issued by the Lightolier Company of New York City of which B. Blitzer is president and M. D. Blitzer vice president. Beautifully bound in textile leather, sharply embossed, it contains over one hundred pages completely illustrated throughout, including the highest quality of color halftones.

Some idea of the book's elaborateness may be gained from the fact that many of the color schemes used were reproduced from original oil paintings. Robert Fish, advertising manager of the Lightolier Company, is to be congratulated upon having produced this rare work of art.

Although this book must have cost several dollars each to produce, it is being sent to fixture dealers and electricians upon request, and it surely will be preserved by all who come into possession of it.

Manual of Estimating

Those who have not sent in their dues to National Headquarters are out of luck. They are missing one of the most useful pieces of printed matter ever issued by the National Association of Electrical Contractors and Dealers—the Manual of Estimating. For the benefit of anybody who does not appreciate the usefulness of this estimating manual let him read the following description and explanation of it and judge for himself:

The Manual is in pamphlet form and is classified in four parts: (1) Taking Off Material and Use of Forms; (2) Labor Cost Data; (3) Job Conditions Affecting Branch Circuit Conduit Work; (4) Tables of Standard Times. This last section contains sixteen tables which include standard times on branch circuit conduit, outlet boxes, cabinets, lighting and motor circuits, switches and plug receptacles, and all such work as comes to the electrical contractor every day.

The second part of the pamphlet is explanatory of the tables, and discusses the methods of arriving at unit costs and

labor cost data in general. It takes up the question of the efficiency of electrical workers, shows how to figure their time, and also how to arrive at the proper figures in applying labor costs to the job. The titles of the other sections are sufficiently descriptive as to require no further analysis at this time.

This Manual is the result of years of constant study and research on the part of those who are responsible for it—the various members of the National Association who have been active in the Cost Data Committee. For the past two years Arthur L. Abbott of St. Paul, Minnesota, has been chairman of that committee. He brought to it a ripe experience, and has since given to the subject an abundance of time and thought.

In addition to the Manual of Estimating, Mr. Abbott has brought out a set of forms which he recommends for use therewith. In his preface Mr. Abbott says that estimators differ as to what constitutes an ideal set of estimating forms, but that he strongly recommends the new ones, as actual use conclusively proves their efficacy.

Not only the forms, but the methods and systems set forth in the Manual have all been tried out and successfully operated by experienced electrical contractors. Hence the Manual is not an experiment—not a new and untried system—not the result of one man's efforts to solve a certain problem; but it is a



Meet A. Penn Denton, chairman of the Code Committee who will lead the discussion on this subject at the convention session on Friday, October 13. Everybody will be glad to know that Penn comes from Missouri. He heads the Denton Engineering and Construction Company at Kansas City.

composite work of the actual experiences of a number of practical estimators—practically all of them successful electrical contractors.

The Manual of Estimating including a pamphlet consisting of a Sample Estimate accompanied by the five forms have been sent to the active membership. It behooves every man who wants to progress in the electrical business to pay up his dues and get this estimating study.

Penn State Meets

As predicted in the invitations, the semi annual meeting of the Pennsylvania State Association at Philadelphia, September 13-14, should prove a veritable push button for business in that state and uncover many practical ideas which will go far to solve the various problems existing. All sessions were held in the Adelphia Hotel.

The first day, September 13, was Committee Day. The general state executive committee met followed by a joint session of this committee with representatives from other branches of the industry. Many important questions arose and were quickly disposed of through the able leadership of Chairman R. W. Keck of Allentown who kept the discussion down to brief duration at all times. It was pointed out at these sessions that the legitimate contractor-dealer has been getting only about one-third of the business done in the state, the other two-thirds going to the commonly called curbstoner.

The second or what was known as Industry Day began with a Howdy luncheon at noon. Then followed the open business session featuring the Electrical Open Forum, giving all an opportunity to hear and be heard on the wide range of subjects under discussion. In a preliminary talk Chairman Keck stressed the need of concerted action by electricians in order to overcome the disturbing conditions brought on by the unfair competition of the curbstoner, and urged that the desired remedy could probably be best effected through the forming of local associations.

The matter of the proposed amendments to the National constitution was discussed at length and ended with a resolution being adopted that the State Association is in favor of such action being taken by the National Association that will prove of the greatest ultimate good to the membership. Other resolutions were made concerning proper margin of profit, matters of legislation and cooperation with Under-

writers. An important matter was the decision to publish a monthly magazine in behalf of the State Association. It was felt that this would do much to further the work. Reports from local

associations closed the meeting. After the Industry dinner addresses were made by John Macintyre of the Society for Electrical Development and George Y. Allen of the Westinghouse Company.

Mr. Macintyre spoke largely on the work of the Society and Mr. Allen's talk was on radio with lantern slides being used to illustrate the many features of the science.

Edison in Cincinnati

Convention City is Rich in Memories of the Great Inventor's Early Triumphs

[NOTE.—The following facts were communicated to Warner Sayers of the F. D. Lawrence Electric Company, Cincinnati, who has served as local chairman of the convention publicity committee, by William G. Reuter of the Reuter Electric Company in the same city. Mr. Reuter's personal knowledge of the Wizard's initial successes with electrical inventions in Cincinnati is astonishing, and the way he tells of them makes most interesting reading.—The Editor.]

Thomas Edison was a character of nondescript type and his Duplex telegraph instrument, made in Cincinnati, Ohio, was one of his first inventions. This permits two telegrams to be sent over one wire without one interfering with the other when sending. It was a wonderful achievement as you can readily see by the following example:

If the telegraph business got too heavy on one line, say between Cincinnati and Cleveland, of course there was only one resource left and that was to build another line between these two points, clean across the state, to take care of the additional business. You can readily see the enormous saving of the little duplex instrument.

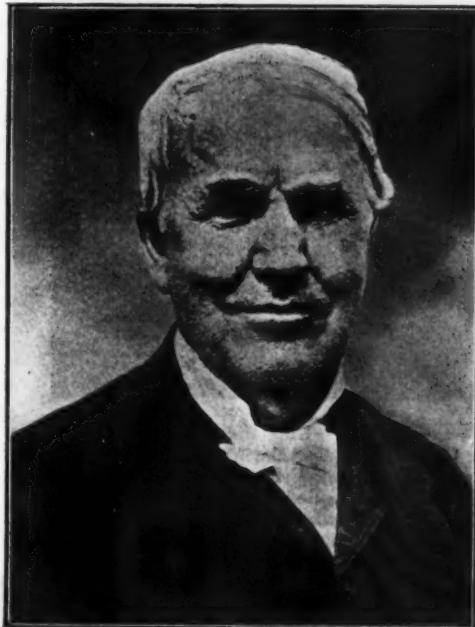
To bring this matter more fully to your mind, figure what it would cost to run a telegraph line from Cincinnati to Cleveland, counting poles, cross arms, insulators, wire and labor, and you will get a good conception of what a tremendous saving was effected all over the world by the use of this Duplex.

This was made on the fifth floor of the Excelsior Building, the southeast corner of Opera Place and Race Street, above Greenwald's Jewelry Store. The building is still there.

Methods of Experimenting

Edison in his experiments needed a long line of telegraph wire to try out his invention and he improvised the following: He bought some flour barrels and wound galvanized wire around them and connected the ends of the wire to the next barrel. Realizing the tremendous task of building a 100 mile line

with this method, he applied for a position with the Western Union Company. The main office at that time was on the northwest corner of Fourth and Vine Streets, on the site of the Lincoln Bank today. He applied for a position as on and off telegraph operator. That is, his duty was to attend to messages during the dinner hour or when some of the operators were off duty, due to sickness or for any other reason. At an oppor-



Thomas A. Edison

tune noon hour he disconnected the line in Cincinnati and Toledo and put his Duplex instrument in use and demonstrated to his own satisfaction on the Western Union lines. It would work. He found that he could send two messages over one wire without one interfering with the other, but he failed to reconnect the wires before the wire chief returned from dinner and on discovering that young Edison had tampered with the wires he was discharged. It was some five or six months after before Edison got his Duplex instrument in good shape and asked a trial of this instrument from the local Western Union manager, who advised him to go on to

Boston and present his apparatus to the parent company of the Western Union Telegraph Company.

A short time after this Mr. Edison went to Boston to present his invention to the parent company and after quite a delay he met the directors of the Western Union Company and demonstrated to them the possibilities of his Duplex. They immediately saw the immense possibilities of this instrument and paid a price of \$60,000 to Thomas A. Edison for his patents; also getting him to sign a paper, giving the Western Union the first privilege to buy any future inventions Mr. Edison might develop in this line.

Payment Was Refused

Mr. Edison took his check of \$60,000 to a local Boston bank and not being able to be identified, payment was refused. He immediately returned to the Western Union Company thinking he had been tricked. On being reassured by the directors that the check was all right, they sent a man with him to identify him. He cashed the check of \$60,000 and jammed the money in his pockets and walked around Boston as if in a dream. He had fully determined to ask \$5,000 for his invention—and received \$60,000.

My personal impression of Mr. Edison at that time was that he was half a nut. Always dreaming, always working on the impossible. A slovenly appearance, usually wearing a long linen duster and a straw hat and constantly chewing tobacco. He frequently slept in a stable in Baker Alley between Vine and Walnut Streets, back of the new Sinton Hotel which was then Pike's Opera House.

You must bear in mind that I am speaking of the time when there was no motors, no electric light, no telephones, no nothing, except the plain telegraph instrument. That was the only electrical apparatus known. We did not know anything about lightning arrestors and after each lightning storm our bench would be piled high with burnt out tele-

graph instruments that were burnt out by lightning and had to be repaired. These would be repaired and put back in use and after you had another lightning storm the same instruments might be back again in a week or ten days. We knew nothing of fuses to protect us from lightning.

Denver Annual Picnic

The annual outing and picnic of the Electrical Coöperative League in Denver, August 23rd, proved one of the most successful get-together drawing cards ever held at the electrical industry in the Rocky Mountain region.

It was held at Lakeside, a nearby amusement park, and during the afternoon and evening nearly eight hundred people passed through the gates. Nearly all of the electrical offices and stores were closed for the afternoon, and according to reports it was not only the members of the industry who were found in attendance but also a large number of their families.

The afternoon was devoted to field sports and athletic contests interspersed with various novel stunts. The jobbers proved the big winners in defeating the manufacturers at baseball and in leading the field in the relay race against the central station, contractor-dealers, and manufacturers.

Over fifty prizes donated by League members were awarded for the various events and prize dancing contests. Balloons were given to the children. Coffee and ice cream were served by the committee.

Those in charge of the picnic and responsible for its success were Clarence Keeler of the Denver Gas and Electric Light Company, H. W. Overbeck of the Mine and Smelter Supply Company, and

H. Alex Hibbard, assisted by S. W. Bishop, the League manager.

California Meetings

A grand coöperative meeting was held in San Francisco on the night of September 7. The attendance of 323 was divided among the various interests as follows: manufacturers, 104; public utility men, 87; jobbers, 61; contractor-dealers, 51; and unassigned, 20. This is believed to be one of the largest get-together meetings ever held in California.

According to Special Representative Davis, the spirit of association work is being favorably developed in this state.



A Conspiracy—Call the Police! —O, no, It Couldn't be, for the Men Are Our Own Larry Davis and Brother Kenneth McIntyre of the Society. They're Just Happy Over all the Enthusiastic Meetings They've Had on Their Recent Trip

Group organizations are looking within themselves for the bettering of their service, and the coöperative campaign is being planned on a much broader basis for 1923. Captain Davis together with K. A. McIntyre of the Society for Electrical Development was in attendance at the September 7th meeting and both gave addresses that were enthusiastically received.

On September 13 these men held a meeting in Los Angeles at which all branches of the industry were represented—over three hundred attending—and on the following night a most satisfactory meeting was arranged with the contractor-dealers in their new headquarters. The Captain believes these are the most unique and attractive meeting rooms in America—and he should know whereof he speaks!

Salt Lake Gathering

Approximately one hundred and seventy-five electrical folk were in attendance at the joint meeting held at the Salt Lake Commercial Club on August 31st to hear Laurence W. Davis of the National Association and Kenneth A. McIntyre of the Society for Electrical Development.

The meeting carried a wealth of valuable information for the contractor-dealers' branch of the industry and proved to be very profitable to those who were interested in the subjects presented.

Messrs. Davis and McIntyre were entertained with a splendid program at the organ recital in the famous Mormon Tabernacle, after which they were driven in autos to Pinecrest Inn, Emigration Canyon, where an informal luncheon was served in their honor.



The Feeling Uppermost in Mind Was That All Had a Good Time

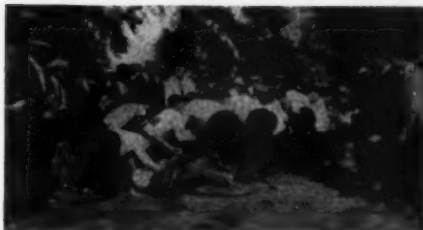


at the Annual Outing and Picnic of the Denver Electrical League

Brooklyn-Queens Outing

Everybody Had a Good Time at Whitestone Landing, L. I., September 16

The Brooklyn and Queens boys were bound to have a good time at their Electrical Folks' Outing, as they called it, for they took every care to provide a program as lively as it was diversified. The annual affair was held on September



The Tug of War Losers Witnessing the Fall of Man

Next came the foot races participated in by the children, misses, young men, and fat men respectively. Every event was closely contested and the winner was in each case easily designated, with one exception—the fat men, as these chubby fellows, fleet footed as they were, tore down the course and were almost within reach of the tape, somehow or other Lou Kalischer got tangled up with Announcer Walcott and both were put out of the running. Not only were



Breathlessly Waiting for a High One to Land

they disqualified but their capering almost rendered a selection of the winner impossible.

Next came such features as potato races, three legged races, involving women as well as men contestants, and a baseball game between the jobbers and contractor-dealers—won of course by the latter. After the electrical banquet, attended by more than 300 members and guests—the dinner being es-

pecially prepared to appease such appetites as are known only among these fellows of Brooklyn and Queens, a prize drawing was offered to everyone still on the field. This was in the form of a Thanksgiving relish which is just another way of saying two turkeys.



Outing Committee, Left to Right: Stone, Walcott, Tollner, Wilhelm, and Levy

Everybody opined it was a grand all around affair, and when the time came to bid each other good bye it was a happy electrical gathering indeed that closed the day's outing at Whitestone Landing, L. I., September 16.

Southern Idaho Meeting

The second semiannual meeting of the Southern Idaho Contractor-Dealers' Association was held in the Commercial Club Rooms, Hailey, Idaho, August 25-26. Very good addresses and discussions were listened to by a fairly good audience although poor weather conditions and the inability of several speakers to attend brought down the attendance considerably.

J. C. Painter delivered an address on "Radio Development." As manager of the radio department of the Capital Electric Company of Salt Lake City, he set forth some very interesting points concerning the new field of electrical merchandising. W. R. Putnam of the Idaho Power Company was unable to be present and the time which would have



Kreye of the Contractors' Team Throws a Hot One



More Happy Moments in One Afternoon and Evening Could Not be Hoped for by the Brooklyn-Queens Boys

been devoted to his address was taken up in general discussion on legislation for licensing, inspection, etc. The two electrical travelers, Laurence W. Davis and Kenneth A. McIntyre, were on hand to

gingerize the meeting with their peppy talks on "Building the Electragist's Business Through Association" and "Publicity by Coöperation" respectively. Special entertainment features were

provided for by the entertainment committee, which included a delightful dinner and dance at the Guyer Springs resort, where the delegates were guests of the Wood River Power Company.

Activities Among Electrical Interests in Canada

These Items Have Been Contributed by Representatives in Various Sections of the Dominion

A Vancouver Victory

After months of effort on the part of the fieldman of the Electrical Service League of British Columbia the small residence wiremen of Vancouver have organized the Electrical Contractors' Association of that province.

This organization is entirely independent of any existing electrical contractors' association but is formed for the specific purpose of bettering conditions among the residence wiremen.

The following officers were elected August 1st to serve for a period of six months: President, A. M. Buck; secretary-treasurer, Jos. Holt; executive committee, H. B. Steeves, Mr. Johnson of Johnson Electric, and Mr. Safford of Crosby and Safford.

Meetings are held twice a month.

Progress in B. C. Province

Coöperation in the electrical industry in British Columbia has taken on an added impetus since the visit of the goodwill promoters, Laurence W. Davis and Kenneth A. McIntyre, who at the time of their visit in this part of Canada had completed a large part of their 10,000 mile trip.

Arriving in Vancouver on August 14th, these two gentlemen were the guests of the advisory council of the Electrical Service League of British Columbia, at which time the council benefitted by their experience, particularly in solving the problems attendant upon an electric home exhibit.

Monday evening they addressed the representatives of every branch of the industry at a dinner given under the auspices of the Electrical Service League of British Columbia. Mr. McIntyre spoke upon "The Value of an Electric Home to the Electrical Industry" and Mr. Davis upon "Coöperative Associations in the Electrical Industry."

Tuesday evening Mr. Davis addressed

a joint meeting of the members of the National Association of Electrical Contractors and Dealers and members of the small nonassociation electrical contractors' club.

The direct result of these meetings in Vancouver has been to increase membership in the National Association of Electrical Contractors and Dealers' Association and to gain the more united support of the contractors for the Electrical Service League of British Columbia.

August 16 Mr. McIntyre and Mr. Davis, with Sid Smith, assistant district manager of the Canadian General Electric Company, W. W. Fraser, past president of the local branch of the National Association of Electrical Contractors and Dealers' Association and Rey E. Chatfield, secretary-manager of

the Electrical Service League of British Columbia, went to Victoria and there addressed the members of the electrical association at a dinner in the Dominion Hotel.

Previous to this visit to Victoria of Mr. Davis and Mr. McIntyre the contractors of that city could not be interested in association work. At the conclusion of the dinner every contractor present became a member of the National Association. In addition the central station took out an association membership in the National Association.

The electrical industry of this province is much indebted to Mr. McIntyre and Mr. Davis and to the organizations they represent. It is hoped by the entire electrical industry that this trip of these two gentlemen is the forerunner of a Canadian division of the National Association of Electrical Contractors and Dealers.

New Calgary Association

The Calgary Electrical Contractor-Dealers' Association was organized on August 8 at an enthusiastic meeting of electrical contractors and dealers in the Elizabethian room of the Hudson's Bay Company. The first meeting was held in two weeks when an election of officers was made.

The formation of the Calgary Association followed a luncheon given to Laurence W. Davis, special representative of the National Association, and Kenneth A. McIntyre of the Society for Electrical Development. Seventy electrical men of Calgary were in attendance.

Mr. McIntyre spoke on "Publicity by Coöperation," and Mr. Davis spoke on "Building the Business of the Electragist Through the Association."

R. A. Brown, superintendent of the Calgary public utilities, emphasized the



A. L. Abbott, chairman of the Cost Data Committee, will tell the delegates all about the new Manual of Estimating just issued by his committee. In his work as head of the Commonwealth Electric Company at St. Paul, Minn., he has made a special study of this subject and is in a position to discuss it from every angle.

point that the new local association will have no connection with any attempts at price fixing. "All associations which have tried this in the past have failed," said Mr. Brown. "Any attempt to fix uniform prices simply means an effort to support the inefficient, whereas competition means that the contractors' prices will be based on merit." Similar points were made by the other speakers.

Ontario Meeting

The Ontario Association of Electrical Contractors and Dealers will hold a meeting of its membership at the King Edward Hotel, Toronto, on November 13-14. This is expected to be an unusually big meeting bringing together interests outside of the contractor-dealer field, and Secretary J. A. McKay, 24 Adelaide St. West, Toronto, desires to know of all out of town delegates who are planning to attend in advance of their coming so that adequate accommodations can be provided for.

Third Electric Home

The city of Montreal opened to the public on September 16th another electric home which will close on October 7th, according to the *Electrical News*. This is the third educational exhibit arranged by the Electrical Coöperative Association of Quebec, and the second during the present year.

Montreal continues to carry on the electric home campaign not because it is a seasonal fad, but because all the branches of the industry earnestly believe and have satisfied themselves that it is a most efficient and economical means of educating the public to the wider use of electricity. Besides it actually demonstrates advantages derived from proper and adequate wiring of houses, has considerable and beneficial influence over the homeseekers and builders, and at the same time giving an opportunity to the contractor-dealers and their staffs to come in contact with many prospective clients.

Notre Dame de Grace district, where the home is located, is essentially a residential part of the city, consisting of medium sized and priced houses, the bulk of which are owned by the occupants. The building program of that district this year and for the next two or three years is probably the most extensive of any part of the city which in itself is an advantage. The house used for the electric home is one of some twenty built this year by the Lanca-

shire Land Construction Company, which has wired a number of the houses according to the plans prepared by the wiring committee of the Coöperative Association.

Several new features not available for the previous homes are included in this one, which add to the attraction. Among them are electrical dining and bedroom sets, the first ones of the kind manufactured in Canada. The Gibbard Furniture Company of Napanee, Ont., on representation made to them by the Coöperative Association, made up the first electrical set of furniture, which forcibly impress upon the visitors the advantage of a sufficient number of convenience outlets properly placed in the rooms not only to derive comfort but also to enable the rearrangement of furniture in the rooms to suit the fancies of the ladies.

Another improvement has been the placing of a radio receiving set in the adjoining house, the idea being not to interrupt the traffic in the electric home itself and not to distract the attention of the visitors—where both concerts and full explanations of the working of this latest invention are afforded to the public.

The Coöperative Association has also under consideration a plan to open to the public during the coming winter and early spring an electrically equipped home where twice a week actual demonstration of the various appliances will be given by experts.



H. P. Foley, the new Atlantic Division representative on the Executive Committee. As this is his first term of office he is to be complimented on his excellent work as chairman of the Legislative Committee, the position assigned to him.

Montreal Permanent Exhibit

A permanent exhibit of electrical supplies has been installed in the office of the Electrical Coöperative Association at Montreal. It is felt that with the increasing building activities an exhibit of this nature by being accessible to the architects at all times will prove beneficial not only to the building and electrical men themselves, but to the public as well.

Standardized Drills

What are believed to be the first standards for portable electric drills were adopted by the Electric Power Club on August 20. These rules are the nucleus of a complete group of electric tool standards and what has already been accomplished includes a definition of what constitutes a portable electric drill, test requirements of the motors, performance specifications for drilling, standard sizes of drills, and the information which should be given on electric drill name plates.

Your Vital Message

As an enterprising Electragist in every sense of the name you want to become established in outside places. Virgin soil offers you many opportunities.

Feature this design:



This will establish *your* vital message in the minds of outsiders as nothing else can—a distinctive design. It will not take long for people now unknown to you when once they are acquainted to connect your name with all that's best in the electrical business.

Look at the ad in the advertising pages of this issue that gives you the particulars about using this design. There are different sizes for all the various forms of advertising you employ whether newspaper ads, pamphlets, booklet, letterheads, on the counter, in the show window, or what not. The National office supplies you.

Better Home Week

The Better Homes In America movement, organized to promote the building of better homes, has designated the week of October 9-14 as demonstration week. The time, however, is optional and demonstrations may be held at any time during the month if local conditions do not permit of the carrying out of programs during the week specified.

Better Homes in America has as its governing head an advisory council composed of prominent men and women and is national in scope. A general committee arranges the demonstrations and takes care of all the promotional work relating thereto that is carried on through the newspapers and patrons. Then subcommittees located in each community carry on the large amount of local work necessary to the end of putting on the actual demonstration locally on a profitable basis.

Electragists will find it well worth their while to cooperate in every way possible with this movement. An information bureau has been established at headquarters in New York City where any information relating to the movement may be easily secured.

Wynkoop Honored

Hubert S. Wynkoop, M. E., author of *The Code at a Glance* and a regular contributor to the *NATIONAL ELECTRAGIST*, has been appointed by President Jewett of the American Institute of Electrical Engineers a member of the Committee on Code Principles of Professional Conduct. Mr. Wynkoop has been in charge of the electrical inspection service of the city of New York for the past twenty five years and is well known locally as a consistent supporter of ethical standards in the public service. His steady fight in this direction—often against great odds—has now been appropriately recognized by President Jewett.

Window Trims and Fish

People don't necessarily have to live inland to believe in fish stories. A good many right on the water's edge so to speak believe in them and sometimes take enough stock in their purport to put such stories to practical use in the electrical business.

It worked mighty well for the Lee Electric Company of Baltimore a while back and don't you think it didn't. They had a little trouble in the shop one

morning and before the fracas was ended one of the displaymatizers—an employee who helps trim the windows so that the eyes of passersby will be caught by the show and made to come in to buy—had put his foot through a 1000-watt lamp so that the tip was knocked in, making a clean cut hole of an inch or so in diameter.

Before the boss arrived, however,—for this chap is a whizz on unique ideas—he had the broken bulb all dolled up in the most prominent part of the window half full of aqua with a score or less of fishy little gold fish scampering around in their playful manner going in and out through the filament like so many lightning bugs on a dark night.

Whatever else there was to this fish story, it's a cinch the display meant more to the officials of the company than did the lamp bulb itself before it was broken.

It'll work as well for you, too, Mr. Electragist if you will try the scheme out.

Fire Prevention Week

Fire Prevention Week from October 2 to October 9 is expected to be well observed, according to the National Fire



Here's the lone Executive Committee member from the Pacific division—E. H. Eardley. His home town is Salt Lake City where he carries on his own progressive business. As chairman of the Engineers' Committee he will present a report at the convention session on Thursday morning, October 12.

Protection Association under whose auspices the idea is being carried out. Members from all parts of the country have written to headquarters for speakers to address their local gatherings, and it is hoped that every radio broadcasting station in America will include a ten minute message during the early part of the week.

Prints Electrical Page

An electrical page has been instituted by the *Chicago Herald-Examiner*. One of the first to appear was mast headed "The Latest News in Things Electrical for the Home," which included a number of informative articles in addition to a large amount of electrical advertising.

One of the leading articles was written by J. W. Collins, secretary of the Chicago Electrical Contractors' Association, commenting on the great value of the press in furthering the message of electricity and complimenting this paper on its progressiveness in publishing the electrical page.

Buffalo Conference

A big time was held in Buffalo by western New York electrical interests on September 28-29. It was too late to get the details of the outcome of the meeting for publication in this issue, but it is believed that this was the first meeting ever held of its kind by the Niagara Frontier men.

The purpose of the meeting was to make plans to formulate and finance a continuing movement for the general upbuilding of the industry in the western part of New York State, interests who by reason of location and interest should work together. The presage concerning the conference was that there would be a big, meaty program with the proper admixture of fun and frolic.

Tie-in Publicity

Capitalizing on the idea that a trade publication used in giving publicity to his electric home, W. J. Ball, manager of the Tri-City Electric Company of Moline, Illinois, sent out an elaborate folder to the trade which showed the same illustrations displayed in the magazine and carried further human interest by being entitled *Current Topics*, working in some well selected jokes, and setting forth the merits of specific household devices.

A message sent to the many friends of the company was as follows: The

successful management of a business demands that the least possible time be taken up with details—that all work be handled with efficiency and speed and that the most economical methods of operation be employed.

The same principles that make a business apply equally in the management of the home. Economical efficient methods and the elimination of details are made possible through the use of electrical home devices. They save time and money. They are to the home what the telephone and typewriter are to the office.

Attention was called to the illustrations and an invitation given to see the devices used in the home.

New Power Handbook

The Electric Power Club, Kirby Bldg., Cleveland, has issued a new edition of its handbook—covering substantially all the standardization it has effected in electric motors, motor pulleys, generators, transformers, electric tools, mining and industrial locomotives, control equipment, power switchboards and switching equipment manufactured in this country.

The handbook also contains definitions, symbols, general engineering recommendations and other information needed by users and purchasers of electric power apparatus and control equipment.

Single copies will be given without charges, to consulting engineers, architects, electric light and power companies, electricians and educators—otherwise the charge is 50c per copy.

Electric Cookery Committee

Robert B. Basham, manager of the electric department, L. Barth & Son, Inc., 32 Cooper Square, New York City, has been appointed chairman of the newly created electric cookery committee of the New York Electrical League, which will promote the use of electric cookery in the metropolitan district. It is Mr. Basham's intention to establish two sub-committees, one to develop domestic cookery and the other for commercial cookery work.

Mr. Basham is an experienced electrical man, having entered the electrical field in 1897 with the Insull interests. For fifteen years he was connected with the Illinois Traction Company and in later years has been in direct touch with the manufacture and sale of heavy duty and domestic electric cookery equipment.

Why You Should Attend

With apologies to R. W. Keck and M. G. Sellers, chairman and secretary respectively of the Pennsylvania State Association, who were the originators of the thought, we want to set forth some real reasons why you should plan to attend the National convention this month:

Strive as you will to systematize your business, each working day is apt to bring forth kinks which usually find expressions of what about this or what about that.

Now the point is *not* that you are unequal to solving them, but whether there is a better way than the one which you decide in your own way.

Either way you put it, "what's watt" is our business, also your business, because we're all tied in with the Electrical Industry, and the clearing house for ideas on standardizing what's watt is the open forum practice of our meetings.

We not only get together, we get chummy. It's a necessary part of being a regular fellow, and real, first hand information is a business help.

If you are not ready to join with us in pushing this electrical age forward, do the next best thing—jot down some of those "what abouts," drop in and look us over at our convention in Cincinnati.

Contract Service Bureaus

Manufacturers and contractors who are interested in federal government, New York State or New York City contracts have now at their disposal, no matter where they are located, complete facilities for bidding on contracts and other dealings with these governments

through the American Surety Service Bureaus located at Washington, Albany and New York. These bureaus are maintained by the American Surety Company of New York and contractors and manufacturers are invited to use them.

Prompt advance information on calls for bids on supplies, construction work or surplus property sales are sent to all who avail themselves of these services and the names of the firms are listed with all purchasing and sales officers. Bidding blanks, specifications and instructions are sent on request and personal attention is given to the proper filing and correction of papers.

To those wishing to take advantage of last moment market prices bidding by wire is arranged for at request. Immediate reports on openings and unit and total prices are sent for competitive bidding and reference purposes, and telegraph notices of awards are wired to those who request them. These bureaus also assist in any matters affecting dealings with the government offices and are available as headquarters for any representatives who visit them.

The Federal Bond Bureau, under the supervision of a former government official assisted by a staff of trained specialists, is located at the Southern Building, Washington, D. C. The State Bond Bureau is at 158 State Street, Albany, New York, and the City Information Service is at 100 Broadway, Metropolitan Branch, New York City.

DO YOU include the Code of Practice as a part of your bid? It saves misunderstandings.



Citizens of Lima, Ohio, Are Justly Proud of Their New Ornamental Lighting System Which Cost About \$200,000 and is as Complete as any in the Country. It Comprises 1245 Units, Extends Over 16.2 Miles of Lineal Length, and Covers the Entire Downtown Business Section and Four Principal Residence Streets

Wafflizing the British

It's a ten to one shot that if any member of the Denver Gas and Electric Light Company ever visit England, the British inspection officials will find the luggage consisting almost entirely of electric waffle irons. The reason for this unusual traveling equipment can be traced directly to the Denver model electrical home.

This model home attracted considerable attention. Within a month 39,262 people streamed through its portals and the wonders seen there were minutely described to all their friends. A few days after this place had been closed to the public a party of English travelers arrived in Denver. Hearing the praises of this electrical exhibit sung on every side they became very anxious to see the place for themselves. Mr. Bishop, manager of the local league there, heard of their desire and made arrangements to have them conducted through.

If these people were greatly impressed with the trip they effectively concealed it. No Englishman can ever be brought to acknowledge American superiority—or vice versa. While showing the guests the breakfast room, Mrs. Willey, a demonstrator, asked one of the ladies if she liked waffles. The woman surveyed her with amazement, "Pray tell, and what are waffles," she asked.

It was Mrs. Willey's turn to be surprised and she determined to fully acquaint the visitors with this delicacy. She baked some and turned the whole party into waffle enthusiasts. And as the result a Westinghouse waffle iron was purchased and goes back to England with these tourists.

Now for the starting part of this tale. Great Britain never heard of this popular American tit bit. Just think of millions of people who have never tasted waffles swimming in syrup! That missionary waffle salesman should be sent to this unfortunate country immediately is the conviction of every person connected with the Denver Gas and Electric Light Company.

Window Trim Contest

It is announced that George Richards & Company of Chicago, beginning October 1, will conduct a window trim contest offering prizes in money from five dollars to one hundred dollars. November 30 has been set as the closing date. The contest is open to all stores selling electrical goods.

All windows will be judged from the

point of view of attractiveness and selling appeal, and the contest is being conducted for the purpose of making retailers realize the selling power of good window displays. The following judges have been selected: Stanley Dennis, editor, *Electrical Retailing*; Frank Stockdale, president, Stockdale Service, Inc.; and James H. Pickens, lecturer, Northwestern University and School of Commerce. The winners will be announced early in December.

Subscriber in China

It is indeed gratifying to the entire staff to note that an interest in China has subscribed for two years to the NATIONAL ELECTRAGIST. The fact that the Electrical Equipment Company, the name of the concern, at Shanghai saw fit to subscribe for two years instead of one speaks well for the alertness of those in foreign lands to appreciate the value of this paper to all electrical contractor-dealers.

Next Market in Cleveland

At a meeting of the Lighting Fixture Market Committee held in Philadelphia September 6, Cleveland was selected as the location of the annual lighting fixture market which will be held in one of the leading hotels in that city on January 15 to 20.

In reaching this decision the manufacturers feel that the Fixture Market is no longer an experiment but an economic necessity and since the Market this year will be confined very closely to the interests of the Lighting Fixture Dealers, the Illuminating Glassware



L. H. Lamont is a Chicagoian and serves as an Executive Committeeman at Large. He was elected in March of this year and is therefore serving his first term as a member of the official staff.

Manufacturers and the Lighting Fixture Manufacturers, the business atmosphere of a hotel is more conducive to a successful Market than a public hall. No appeal is to be made to arouse local public interest as heretofore.

The National Council Lighting Fixture Manufacturers will not hold convention meetings during the Market, the date for their annual convention being set for next summer. However a keen interest will be shown by the manufacturers in the Dealers' convention sessions and no doubt they will participate to some extent in the discussions.

Convention Dates

The following electrical events taking place this month and next are of interest to electragists:

Oct. 2-14—Rocky Mountain Electrical Exposition, Salt Lake City, P. L. Goddard, Secretary, Kearns Bldg., Salt Lake City.

Oct. 7-14—Electrical and Industrial Exposition, New York City, Arthur Williams, President, Irving Place and 15th St., New York City.

Oct. 9-14—Home Beautiful Exposition, Philadelphia, J. H. Goodwin, Secretary, Real Estate Trade Bldg., Philadelphia.

Oct. 9-14—National Association of Electrical Contractors and Dealers, Hotel Sinton, Cincinnati, C. M. Beltzhoover, local chairman, 4th and Plum Sts., Cincinnati.

Oct. 12-21—Philadelphia Electrical Show, Philadelphia, P. H. Ward, Jr., Secretary, Otis Bldg., Philadelphia.

Oct. 14-22—Chicago Radio Show, The Coliseum, Chicago.

Oct. 23-29—Household Appliance Exposition, Philadelphia, J. H. Goodwin, Secretary, 804 Real Estate Trust Bldg., Philadelphia.

Oct. 23-29—Food, Household and Electric Exposition, Milwaukee, W. J. Damm, Secretary, Milwaukee Journal, Milwaukee.

Nov.—Pittsburgh Electrical Show, Pittsburgh, D. P. Lockard, Manager, 1926 Oliver Bldg., Pittsburgh.

Nov. 10—Electrical Credit Association (Interstate Convention), Philadelphia, J. W. Crum, Secretary, Land Title Bldg., Philadelphia.

Nov. 13-14—Ontario Association of Electrical Contractors and Dealers, King Edward Hotel, Toronto, Canada, J. A. McKay, Secretary, 24 Adelaide St. West, Toronto.

Nov. 20-24—Electrical Supply Jobbers' Association, Hotel Cleveland, Cleveland, Franklin Overbaugh, General Secretary, 411 So. Clinton St., Chicago.

Foiling the Boogymen

Men are not supposed to be afraid of the dark nooks and corners, where some one might be loitering, are they? Some of the ladies (and men as well) in Detroit are not disposed this way so the Detroit Edison Company wanted each of the three streets on which their building is located to be a place where everyone could pass without fear of the boogy or any other man. The con-

struction of the building would be very desirable for creating loitering shadows on account of the pillars that extend out between the windows.

They have entirely eliminated all dark shadows by using an X-Ray reflector unit with a very concentrating reflector, and a standard 200 watt lamp burning tip down. The light is concentrated exactly where it is needed, that is, down near the side walk. These projectors are mounted about twenty-four feet above the sidewalk. It is weatherproof, requires little maintenance, and does the job better than anything else that was tried out.

Suggest a floodlight for some building whose shadows makes a good place for the boogymen to hide!

New York Show

As announced the New York Electrical and Industrial Exposition will be held this year in the Grand Central Palace. Three entire floors will be occupied and important exhibitions of radio, industrial and electrical, and other appliances will be shown.

It is unfortunate that the date for the show has been set for the week of October 7, as this will clash with the National convention in Cincinnati. However, this publication will receive a full account of the exhibition and those who are unable to attend on account of the National meeting will be accorded ample explanation of the features in the November number.

Edison Honored at Dinner

The largest number of Edison pioneers ever assembled honored the great inventor's creation of the beginning of central station service in New York City forty years ago by a banquet in the Hotel Commodore that city on the evening of September 11. Many other prominent leaders in the industry were also present.

In the course of the evening after several appropriate speeches had been made by the celebrities of the occasion, a demonstration was given to show the evolution of electric lighting. An original chandelier that Edison had wired was lighted and the contrast was made between the illumination of one of the first incandescent lamps and the latest and largest incandescent lamp of 100,000 candle power.

The spirit of the celebration can be determined by noting those who attended. Among the most well known at the

speaker's table were: James A. Farrell, Charles M. Schwab, Clarence H. Mackay, Otto Kahn, Gerard Swope, Guy E. Tripp, Henry L. Doherty, Frank W. Smith, and C. L. Edgar. N. F. Brady, president of the New York Edison Company, acted as toastmaster, and the speakers included Acting Mayor Murray Hulbert, Charles Edison, son of the wizard inventor, Samuel Insull, Frederick P. Fish, and John W. Lieb.

Pennsylvania Election

The following officers were elected at the meeting of the Pennsylvania Electric Association held on September 9 at Bedford Springs, Pa.: President, H. H. Ganser, manager Counties Gas & Electric Company; first vice president, J. H. Shearer, general superintendent Penn Central Light & Power Company; second vice president, E. H. Davis, president Lycoming Edison Company; and treasurer, G. M. Gadsby, vice president West Penn Power Company.

News Notes Concerning Electrical Contractor-Dealers

Business Changes, Store Improvements, and New Establishments Opened

Webb Electrical Company has opened an electrical supply business at 1713 Live Oak Street, Dallas, Texas. Incorporated capital, \$10,000.

The Ridge Electric Shop will move to the Bain Building, Lake Wales, Florida, where a full line of electrical supplies will be carried.

Carrollton Radio Shop is opening a new radio and electrical supply store at Carrollton, Missouri.

McDonald Bros. are reported to have opened an electrical supply store at Arcadia, California.

Gaines Electric Shop of which James W. Gaines is proprietor, is open for business at the Atwill Building, East Main Street, Richmond, Missouri.

Funk Bros. are opening a new electrical supply store at 306 Baltimore Street, Hanover, Pennsylvania.

Roy W. Middlecamp has opened a new store at 136 West Franklin St., Hagerstown, Maryland. Electrical supplies will be carried.

Allen Anderson and others are incorporators of the new electrical supply business at 5411 East Ravenswood Avenue, Chicago, Illinois. Incorporated capital, \$10,000.

Brazwell Electric Company, successor to the Wilson Electric Company, is featuring a full line of electrical supplies at new store located at Scottsville, Kentucky.

Rhyme Electric Company, Incorporated, a new electrical appliance and contracting business, has open at 135 North Broad Street, Trenton, New Jersey. Incorporated capital, \$50,000. Incorporators: Victor I. Rhyme and others.

Auburn Electrical Shop is reported to have opened at the Edwards Building, Main Street, Coldspring, New York.

Swanson & Novatnie will open a new electrical supply and fixture store at Tamaqua Street, McAdoo, Pennsylvania, to operate under name McAdoo Electrical Supply Company. In market for all kinds of electrical goods and fixtures. Also request sample copies of trade papers regard electrical equipment.

Waldron & Taylor, successors to Leaver and McMillen, are opening a new store at Osborne, Kansas. Electrical supplies will be carried.

Flatbush Lighting Fixture Company will feature electrical supplies at new store, 252½ Flatbush Avenue, Brooklyn, New York.

Domestic Electric Products Company, of which B. R. and L. F. Hieronymus are proprietors, has opened for business at 221 South Sandy Street, Jacksonville, Illinois.

Premier Service Company will locate at the Mason Blanche Building, 221 Baronne Street, New Orleans, Louisiana, as a branch of the General Electric Company.

Delco Light Products Company, formerly located at 342 Third Avenue, Pittsburgh, Pennsylvania, has established new headquarters at 5620 Pennsylvania Avenue, where a full line of electrical supplies will be carried.

Griffen & Gaufield have opened an electrical contracting, fixture and appliance business at 14 Washington Street, Jamaica, New York.

Jones Electric Company of which John A. Dowdall is president, will locate at the Central National Bank Building, St. Louis, Missouri. Incorporated capital, \$10,000.

Jackson Electric Company is featuring electrical appliances and fixtures at new store 2221 Sixth Street, Meridian, Mississippi.

David U. Connor has opened a new electrical supply store at 71 Salem Avenue, Hagerstown, Maryland.

G. F. Gamble is reported to have opened a new store at 24th Street and Ames Avenue, Omaha, Nebraska, where a full line of electrical appliances will be featured.

Progressive Electric & Engineering Company, formerly located at 2053 West 14th Street, Cleveland, Ohio, will move to the Engineers' Building, where a full line of electrical appliances will be carried.

Collins & Montgomery are opening a new electrical supply store at Monrovia, California.

The Industrial Electric Company will erect store building at 300 North Walton Street, Dallas, Texas, to cost \$10,000. Electrical appliances will be carried.

Green & Taylor, successors to W. S. Wiley, have opened an electrical supply business at Hazard, Kentucky. Estimated worth, \$10,000. In market for store and office equipment.

Market Street Electrical House will locate at 420 Market Street, Philadelphia, Pennsylvania. A full line of electrical appliances will be featured.

F. Schmerheim has opened an electrical supply and appliance business at 210 North Hamilton Street, Saginaw, Michigan, estimated to be worth \$10,000.

Apex Electrical Company is opening a new electrical supply store at 208 West Sixth Avenue, Topeka, Kansas.

Eastern Utah Electrical Company in business at Price, Utah, is constructing \$30,000 building here.

H. N. Blanchard Electrical Company will locate at 25 Casco Street, Portland, Maine.

General Appliance Company, successor to the E. A. Koeneman Electric Company, has opened a new electrical supply and appliance store at 214 Collinsville Avenue, East St. Louis, Illinois.

Silver & Morgenstern are open for business at 2550 East 55th Street, Cleveland, Ohio. Incorporated capital, \$30,000.

Bigner Electric Company has remodelled building at corner Grand Avenue and East Alder Street, where new business will be conducted, estimated to be worth \$10,000. In market for store fixtures and electrical supplies.

Patrick Electrical Construction Company, Incorporated, will locate at Solway, New York. Incorporated capital, \$15,000. Incorporators: David L. Patrick and others.

M. W. Hild will move to Market Street near California Avenue, Stockton, California, where new electrical supply business will be conducted. Estimated worth, \$10,000.

Walsenburg Electrical Supply Company will feature a full line of electrical supplies at Walsenburg, Colorado. Incorporators: T. A. Dickey and others. Incorporated capital, \$10,000.

Superior Electric Company is reported to have opened a new electrical supply business at 4428 Broadway, Chicago, Illinois. Incorporated capital, \$25,000. Incorporators: F. A. Flavine and others.

P. & A. Electric Supply Company is locating at West Fourth Street, Mansfield, Ohio. Business estimated to be worth \$15,000.

St. Joseph Valley Electric Company has opened an electrical appliance business at 110 West Wayne Street, South Bend, Indiana. Incorporated capital, \$25,000.

Baldor Electric Company will carry a full line of electrical supplies at new

business situated at 4353 Duncan Avenue, St. Louis, Missouri. Will increase capital from \$50,000 to \$90,000.

Gray's Radio Supply Company will conduct an extensive radio supply business at Butte, Montana. Incorporated capital, \$255,000.

Radio Symphony Phonograph Company is featuring a complete line of radio equipment at Huntington, West Virginia. Incorporators: James A. Young and others. Incorporated capital, \$500,000.

Getting Your Story Across

Haven't you often wondered what you could do to convince your prospects of the assurance of safety and satisfaction that goes with your service?

Here's the way—



Adopt this design. It's no mere agent appeal when we tell you to be the first in town to display it. And in displaying it remember you should use it in all your advertising—letter heads, booklets, pamphlets, newspaper ads., on the counter, and in the show window.

Write National Headquarters. The various sizes of stereotypes for printing, and prices, are given in the advertisement found on another page of this issue.

Electricity Essential

The indisputable reason for the future growth of the electrical industry is that a large and unfailing supply of energy is an absolute necessity to our present civilization, in the opinion of Dr. Charles P. Steinmetz. He says:

Just as the railroad seventy-five years ago organized the transportation of materials, so the transmission of energy to turn our wheels and fetch and carry is being supplied by the electrical industry.

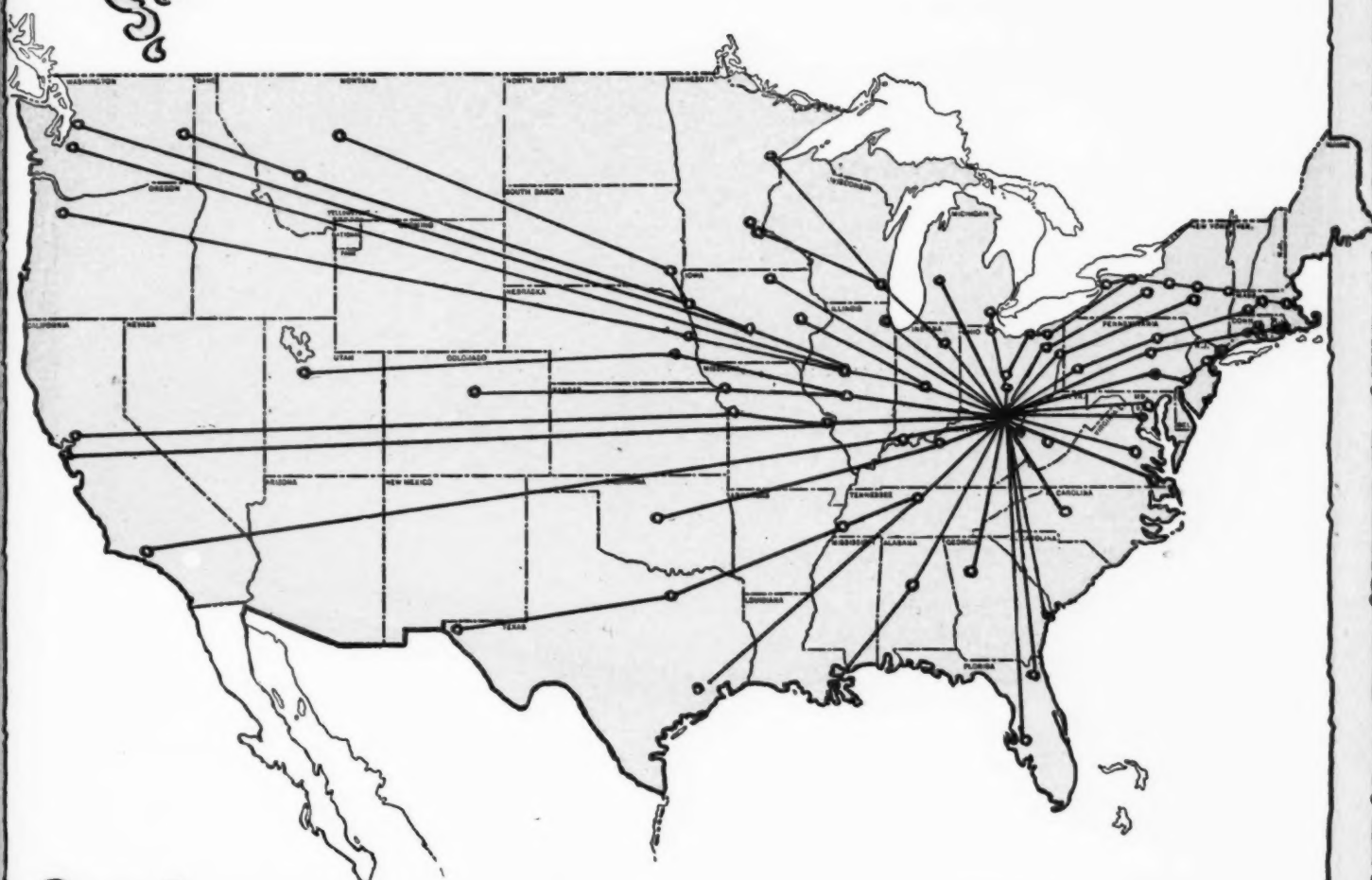
Great factories which make electricity and supply it as other factories make and supply hats or stoves have come into being. Electrical energy is the only kind that can be easily, economically and simply conducted to the centers where it is needed, whether in small quantities for the vacuum cleaner or the house lamps, or in huge masses for great mills and factories.



W. C. Peet, the well known authority on matters of electragy, as a member of the Glad Hand Committee will have something to say to everybody who attends the convention. Tell him who you are and he'll see that you get acquainted—He's from New York



**All roads lead to Cincinnati
the week of October ninth.**



**The same roads lead from Bryant
Distributors to You every day
in the Year.**

*The most Complete Line of Wiring Devices.
The best distribution of Wiring Devices.
The largest Wiring Device Factory.*



THE BRYANT ELECTRIC COMPANY

BRIDGEPORT, CONNECTICUT

NEW YORK
342 MADISON AVENUE

CHICAGO
844 WEST ADAMS STREET

SAN FRANCISCO
149 NEW MONTGOMERY STREET

How Bryant Plays the Game

With Standardized Goods

Bryant standardized the "New Wrinkle" type of Socket.

Bryant standardized "Uno" Shade-holders.

Bryant fostered the standard attachment plug, the standard dimensions of switch and outlet boxes, the standardization of Exit devices.

More than these, Bryant standardized American Wiring Devices, insisted upon high quality in preference to low prices and worked continually for higher standards of wiring. Today, American wiring methods and American wiring devices are the standard of the world.

With a Complete Line

The Bryant line is complete. There is a wiring device for every electrical need. The careful contractor or dealer needs only to consult the Bryant catalog to find the exact wiring device he wants.



is the hall mark of quality on any installation.

With Intelligent Distribution

Bryant distributors are located in every important trading center of the United States and Canada. Their salesmen visit every city, town, village and crossroads where electricity is used.

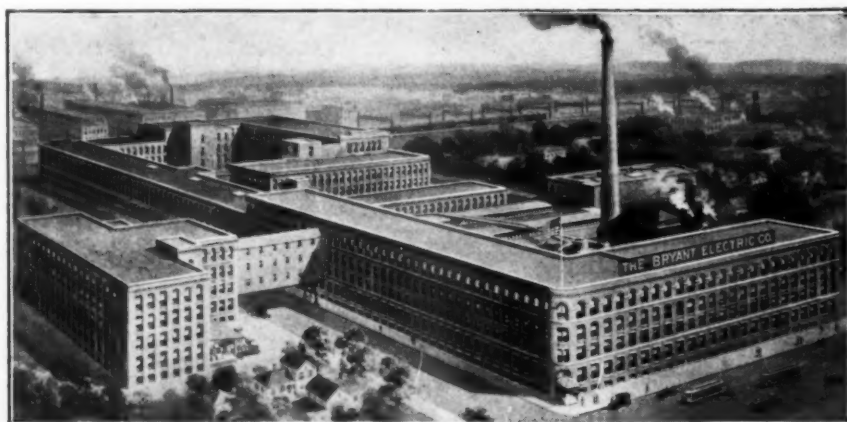
This is good distribution but Bryant does better than that.

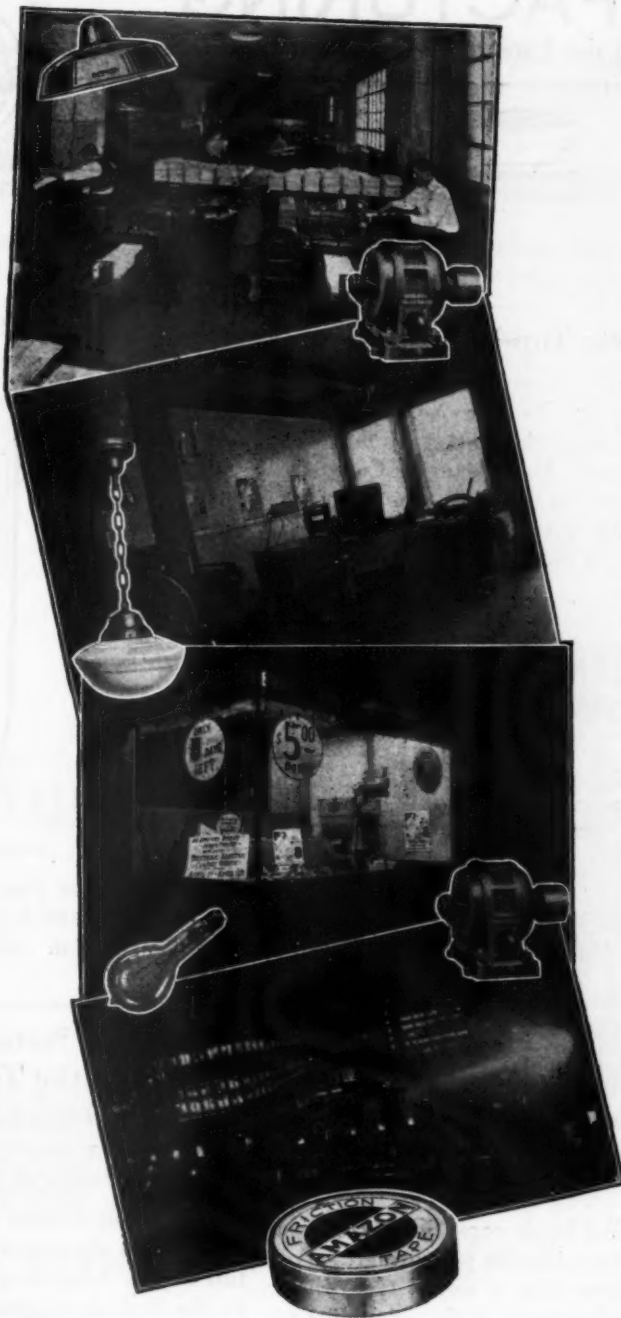
Bryant distributors are picked not only for location but for their progressiveness, their foresightedness and their ability to assist contractors and dealers to develop trade.

With a Progressive Policy

The Bryant Electric Company believes that satisfaction is of more value than price, that good workmanship and tested materials are more profitable than shoddy goods and big discounts.

This policy has never changed. It is responsible for the present Bryant factory—the largest of its kind in the world.





More Business and Where to Get It

More business! It's on any of the streets near you. Every sign, electric and painted, tells of an occupation that needs electrical goods for Light, Power, Heat, or Intercommunication.

The need of Better Lighting is almost universal, for stores, offices, signs, theatres, garages, and last but not least, for homes. There is a wiring job with nearly every one of these sales.

Power—hardly a shop but needs another motor or a better one. The variety of their uses is unlimited. Even a casual glance at what the employees are doing, will show how motor driven tools would do the work more quickly and more cheaply.

To provide you with everything these prospects need, whether lamps, motors, electric tools or supplies for wiring, there is a Western Electric House near you. It can get you what you want quickly.

Address our nearest House.

A
National
Electrical
Service

Western Electric Company

OFFICES IN ALL PRINCIPAL CITIES



New Short Receptacles

Pass & Seymour, Inc., Solvay, N. Y., are placing on the market at this time three practical devices for use with ceiling lights, ceiling bands and in fact any standard or special unit. They fit the standard 1½ inch throat of the ceiling units and provide individual control.



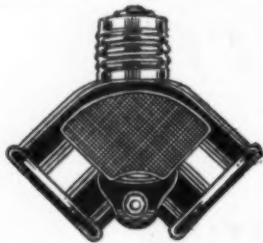
The back of these receptacles is but 1¾ inches, and the ring is designed to give ample room for the glass in the shade holder of the unit. Wiring terminals are enclosed in the porcelain shell. This permits these receptacles to be used where weatherproof devices are required.

Each receptacle is furnished with extra bell mouth which may be placed in the ceiling unit so that the chain or cord falls free of the glassware. The bell mouth acts as a guide for the chain where it passes through the shell of the unit or ceiling band.

For some time the trade has required a threaded chain guide that may be used by the majority of fixture men. P & S 1169, a two-piece threaded chain guide may be used where the standard punch (to slip 1-8 inch pipe size) is used.

New Plug Cluster

The accompanying illustration shows the new Two-Lite Plug Cluster, manufactured by the Stuart Products Corporation of Chicago. This device is made



of black heat resisting compound, and is sturdy and compact. In the absence

of convenience outlets this dual capacity cluster can be used to advantage.

New Tap-Lite Plug

A special feature plug current tap known as the Tap-lite No. 1080, has been placed on the market by the Benjamin Electric Manufacturing Company of Chicago. In that it has the positioning feature, it is an entirely new idea. In designing the slots which take stand-



ard parallel blade caps, they have been made in two sizes for polarizing.

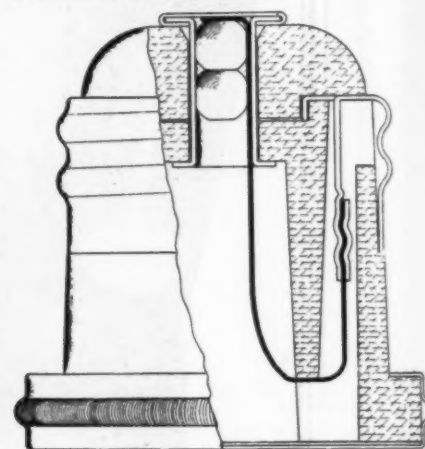
The screw plug is swivel type which permits adjustment of the side outlet to any point of a circle. The Tap-lite has brushed brass shell with bead and thread at bottom for standard shade holders. The side outlet is molded material. Capacity 660 watts, 250 volts.

New Connection Fuse Plug

To obviate the damage sometimes done to nonindicating fuse plugs by the eating of the metal by acid used in soldering the fuse element to the connector, a new type in which no solder is used has been developed and placed on the market by the General Electric Company.

As shown by the accompanying illus-

tration, the fuse element and connector in the side of the plug are held together by crimping, while the base of the fuse element is bent to a right angle and held rigidly against the connector by forcing two shot down upon it.



These new fuse plugs give longer life and will withstand a greater amount of hard usage than other types, it is claimed.

Condensed Notes of Interest to the Trade

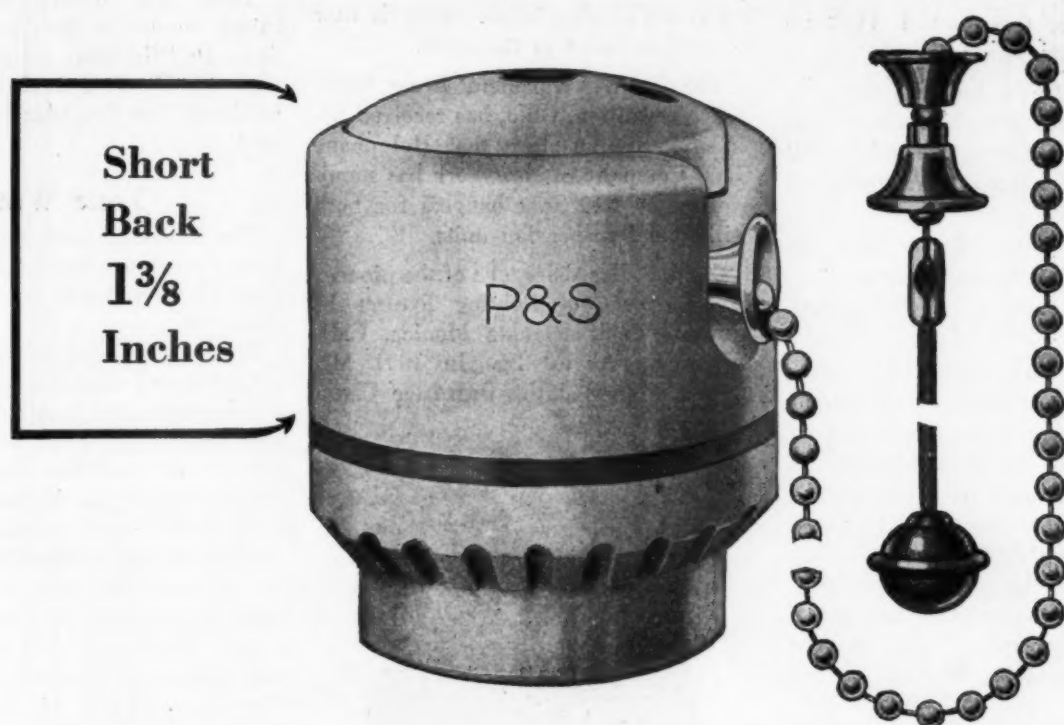
Vincent H. Olson has been appointed general sales manager of the Home Devices Corporation of New York City.

The first of a series of folders for distribution to electragists and jobbers entitled "The Adaptibox" has been issued by the Technical Advertising Bureau of Cleveland for the Adapti Company of that city.

Beginning September 20 the National Lamp Works of Cleveland announces a prize window display contest to last until November 30. The prizes will be awarded for distinguished service in stimulating better home lighting.

Joseph H. Rohs, who has been with the Mutual Electric & Machine Company, Detroit, for a number of years, has been appointed sales manager of the organization.

The fact that a second edition of the 24-page catalog setting forth the advantages of the unit shipping carton put out



New Short Back Receptacles for Ceiling Lights



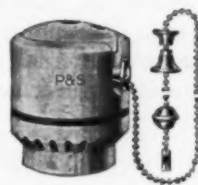
P & S 997

8 inch Chain
with Insulator
For Side Wall
Fixtures

*The Demand for a
Short Back Receptacle
for Ceiling Lights
is Met by
P & S*



*Write for a Sample of This
New P & S Device*



P & S 999

3 foot Chain
and Ball
For Ceiling
Light

Pass & Seymour, Inc.
Solvay, N. Y.

New York

Boston

Philadelphia

Chicago

San Francisco

by the Beardslee Chandelier Manufacturing Company of Chicago, was needed speaks well for this method of merchandising home lighting fixtures.

Arthur Ward Fox, formerly secretary and assistant treasurer, has been elected to the office of vice president and general manager of the Johns-Pratt Company of Hartford, Conn.

Charles N. Wiltbank has been appointed sales representative for the Bryant Electric Company of Bridgeport, Conn., in the middle Atlantic states.

The position formerly held by George Roome Smith with the Krantz Manufacturing Company of Brooklyn, is now occupied by W. G. Balph at Mansfield, O.

Following changes have taken place in the personnel of the General Electric Company: Charles E. Eveleth, executive engineer of the turbine department has been appointed assistant manager of the Schenectady works; Louis B. Van Dyck was elected an assistant general auditor in the office of J. D. LeFevre; Alexander D. Lunt has been appointed manager of the patent department; and Arthur A. Buck takes the position of assistant patent manager.

The Westinghouse Electric & Manufacturing Company announces the appointment of C. R. Gilliland as manager of the Indianapolis office with C. L. Barton acting as manager of the central station division, Cincinnati office.

The Trumbull Electric Manufacturing Company of Plainville, Conn., announces that a wide distribution of its catalog on safety and externally operated switches, recently issued, has been completed.

The Economy Fuse and Manufacturing Company of Chicago has removed its Detroit sales office from the Majestic Building to the First National Bank building.

The engineering department of the Holophane Glass Company of New York City has issued a 36-page illustrated booklet entitled "Modern School Lighting."

The Hunter Fan and Motor Co. of New York City lately issued a catalog covering its complete line of ceiling fans.

The Peerless Light Company of Chicago placed on the market a new line of high grade, popular priced fixtures, which will be marketed knocked down, assembled and wired complete with or

without glass and packed in individual cartons. A thirty six page illumination glassware catalog in six colors is now being distributed to the trade.

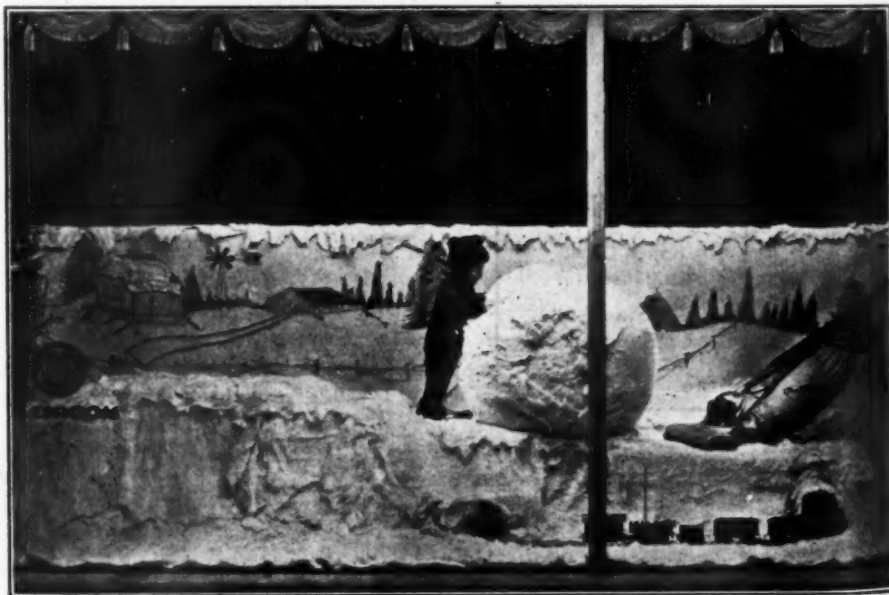
The F. W. Wakefield Brass Company, Vermilion, Ohio, has received notification to the effect that Holophane Glass Company of New York has standardized on Red Spot hangers for both ceiling and suspension units.

Frank S. Beardslee, one of the pioneer manufacturers of lighting fixtures in Chicago, died at Santa Monica, California, on August 25. In 1901 Mr. Beardslee formed the Beardslee Chan-



Frank S. Beardslee

delier Manufacturing Company of which he became president and later chairman of the board of directors. His hard work and enthusiasm contributed to the success of the company in its early days, while his wise counsel carried it through many a crisis and ultimately made it one of the largest manufacturers of lighting fixtures in the United States.



All Year Around Snow Scenes in South Afford Excellent Opportunities for Attractive Displays by Electrical Experts! This Window Trim of Typical Florida at Power Headquarters in Miami Certainly Shows What a Delightful Place This Part of Country Must be in Midsummer

Electric Ranges

There are about 140,000 electric ranges in use in the United States today. In 1915 there were 10,000. Last year 30,000 were installed, and it is predicted that this year 100,000 will be sold.

Your Worth

The following paragraphs were taken from the column devoted to Sparks from Tom Dreier's Anvil in *Forbes Magazine*:

If the organization with which you are connected offered a star to the worker who during the month contributed the idea which helped the most to increase income or decrease unnecessary expenses, would you be the one to wear it or would it go to someone else?

Without being impertinent, we want to ask you right now how much you have done during the past month to increase the sales of your company. Have you contributed one real original idea? Has some thought of yours made the work of your associates easier and more efficient?

If you haven't helped to increase sales, what have you done to effect economy? Have you been able to suggest anything that would eliminate certain unnecessary expenses? Have you suggested any short cuts?

Just for your own pleasure and to test your own value to yourself and to your organization, ask yourself some searching questions like these.



IRRIGATION is a service in which equipment reliability is of paramount importance. The pump and motor do not receive the expert care and constant attention machinery receives in the factory. They are often poorly housed and the plant is usually located on isolated farms or ranches many miles from any source of repair service. A break down may mean a long interruption in the service with a disastrous loss in crops.

The records of the thousands of R & M Motors, which have won the favor of users, pump manufacturers and engineers in this exacting service, match the records they have made in all classes of industrial service under all sorts of operating conditions.

Motor users, contractors, dealers and jobbers who are interested first of all in the quality of a product, find real motor satisfaction in the R & M line.

THE ROBBINS & MYERS COMPANY

SPRINGFIELD, OHIO

BRANTFORD, ONTARIO

Robbins & Myers Motors



"Why the Happy Faces?"

"Because with that Westinghouse Lighting System installed, the boys see more readily, and can work faster. Result—increased pay for them; larger production for us.

"Who made the installation?"

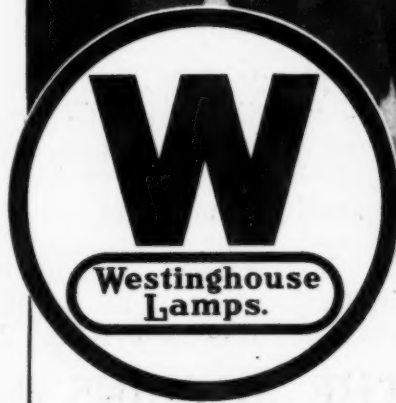
"Girard, the Westinghouse Agent on Maple Street."

"He must be pretty clever, Sam. The average electrical dealer wouldn't be able to handle a job of this size."

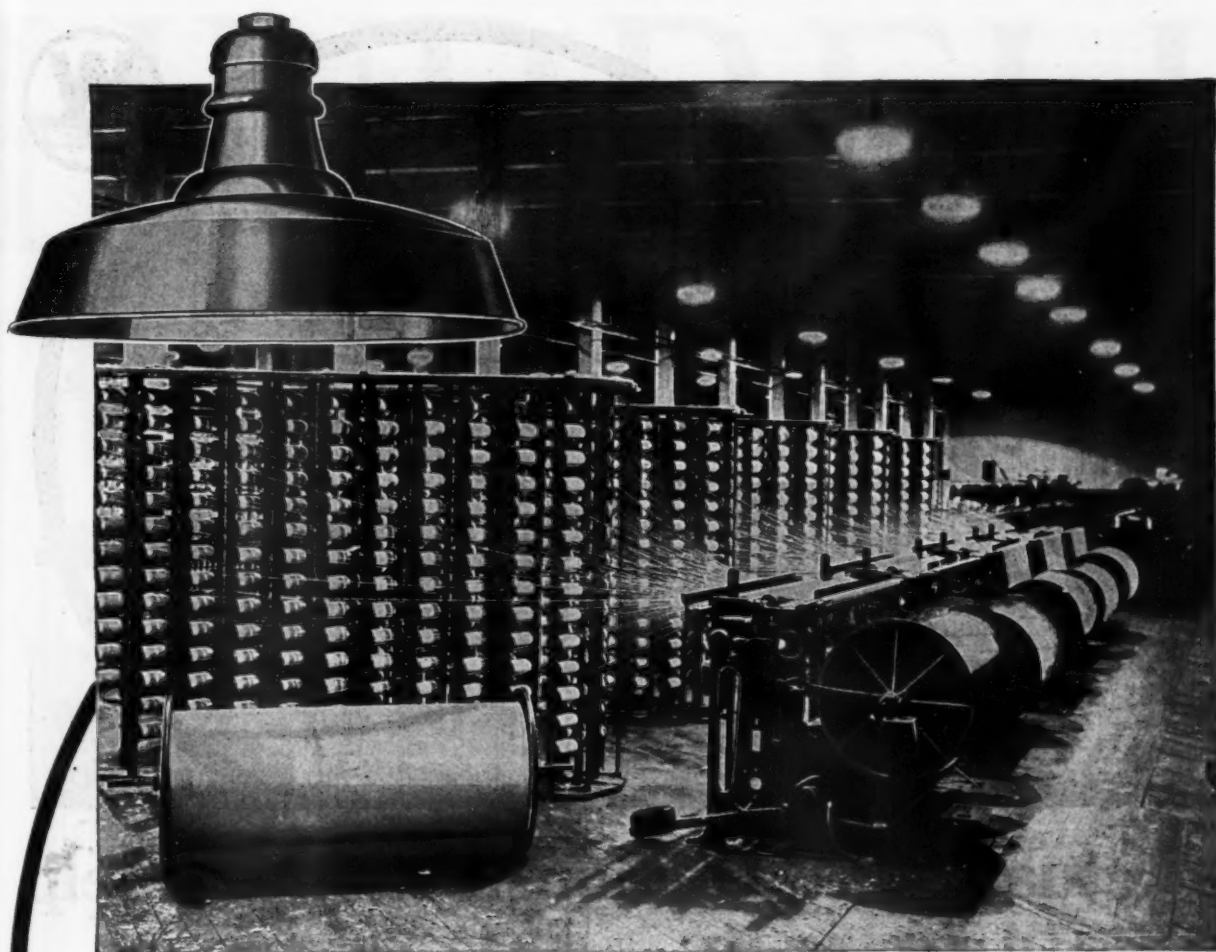
"The average Westinghouse dealer can, because of the help he gets from the Westinghouse Illumination Bureau. Girard had an Engineer down here two or three times from the

WESTINGHOUSE LAMP COMPANY
165 BROADWAY, NEW YORK, N. Y.

Sales Offices and Warehouses Throughout the Country
For Canada: CANADIAN WESTINGHOUSE CO., Ltd.,
Hamilton, Canada



Westinghouse



A contract for industrial lighting

is of considerable importance to the electrical dealer.

Important, in the first place, because it usually means a large sale. Selling "good illumination" is profitable. A thirty-dollar sale of Westinghouse holders, sockets and reflectors should mean another thirty-dollar sale of Westinghouse lamps, wire, conduit and switches.

In the second place, industrial lighting is a profitable field because it means "re-order"

If you do not happen to be a Westinghouse-Cutter dealer, you will profit from a discussion of illumination with a Westinghouse representative or agent-jobber.

If you are a Westinghouse-Cutter dealer, there are all kinds of industrial lighting business to be had in your town. More power to you!

business—if the first purchase was satisfactory. Then, too, most manufacturing plants are continually enlarging.

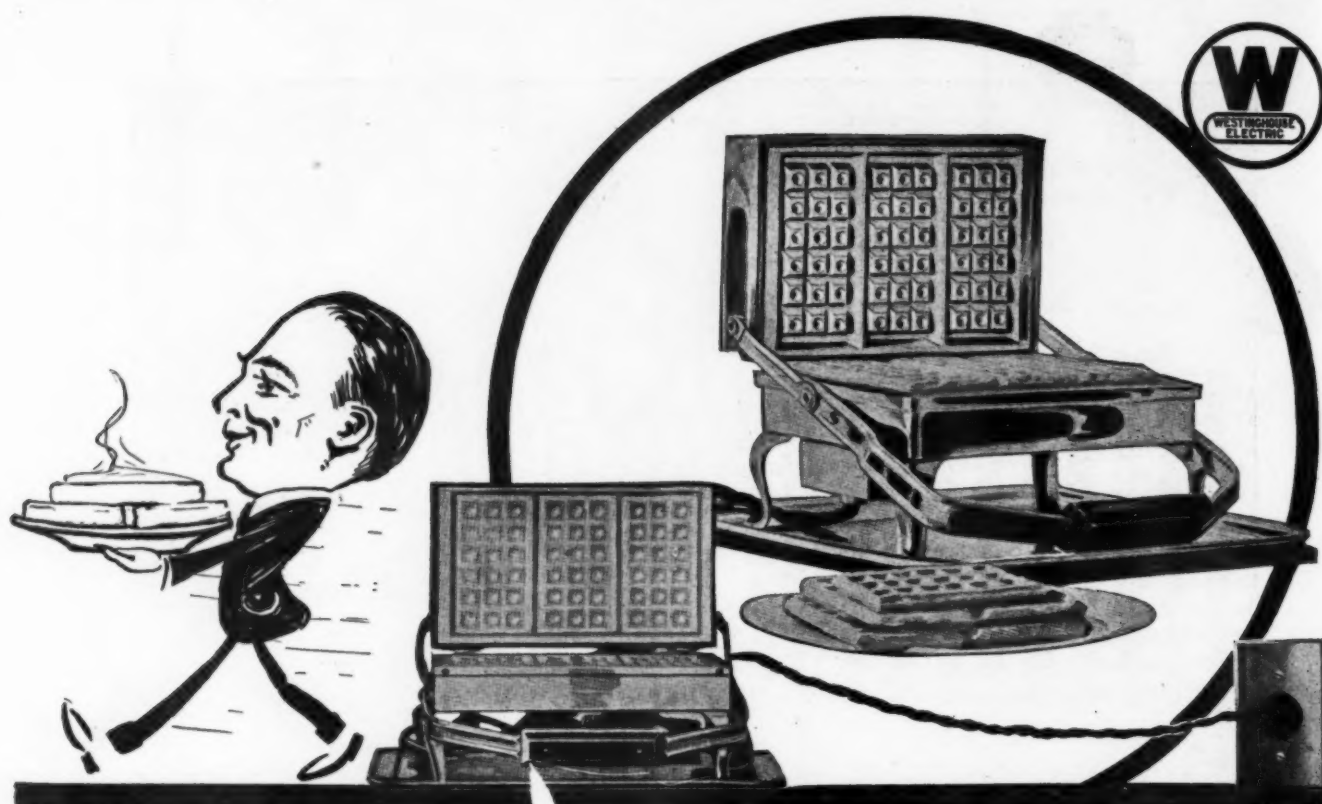
Westinghouse "looks ahead" in the design of lighting equipment. Various types of fixtures have been created with a definite object in view, namely, light—light where it is wanted, and light of the right quality.

The photograph above shows what Westinghouse-Cutter installations accomplish.

Westinghouse Electric & Manufacturing Company,
George Cutter Works, South Bend, Indiana



Westinghouse



Use Actual Store Demonstration to Help You Sell Waffle Irons for Christmas

If you are not serving your customers waffles made the Westinghouse way, you are failing to use one of the best of selling helps.

The Westinghouse Waffle Iron makes deliciously crisp waffles. As no grease is used there is no smoke and the waffles may be made at the table.

At a minimum of expense and trouble you can give convincing demonstrations of the economy, convenience and cleanliness of electric waffle cooking.

Make waffles in your store and serve them to your customers.

—and don't forget that one of the easiest ways to get women to buy is to show them the new cooking possibilities of the Westinghouse Waffle Irons.

The Waffle Iron is a worth while Christmas gift. Not only is it pleasing to look at, but it is useful and can be appreciated by the entire family.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO.

MANSFIELD WORKS, MANSFIELD, OHIO

Sales Offices in All Principal American Cities



You should have copies of Folder 4490, "Delicious Recipes Waffle-ized" to distribute among your women customers. It tells how to use the waffle iron to make thirty new and delicious dishes. Get a supply from our Agent-Jobber today.

Westinghouse

HUBBELL

Toggle Switches are Profitable

BECAUSE—

appearance very attractive
built for long service
light in operation
wide choice in style
two types: "DeLuxe" and "Service"
easily installed
collar screws with shoulder, as required
by Underwriters.

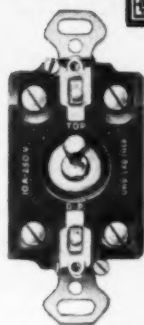
Adjustable Aligning Lugs do away with the use
of washers or extra long screws and insure perfect
alignment with wall surface even when conduit
box is out of line.

Write for copies of Circular 216

HARVEY HUBBELL INC
ELECTRICAL SPECIALTIES
BRIDGEPORT HUBBELL CONN. U.S.A.

2307-U

Toggle Flush Switch, Type
No. 8122. Made Single Pole,
Double Pole (10 and 20
Amp.), Three-Way and Four-
Way.



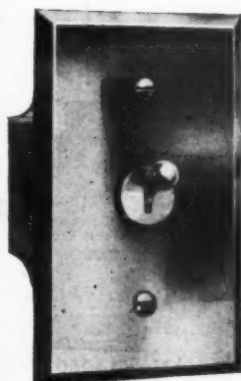
Easy to install.



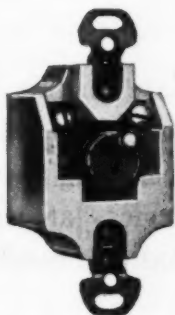
Showing Adjustable Aligning
Lugs



Surface Type Toggle Switch
No. 8102.



Toggle Flush Switch No. 8141.
5 Amp., 125 Volts—3 Amp.,
250 Volts. Single Pole and
Three-Way.



Porcelain Body and Standard
Lugs.



Surface Type No. 8171.



ELECTRICAL SPECIALTIES

"They Carry The Load"



Connecticut Sockets *are Dependable Sockets*

because the mechanical and electrical features are founded on time proven principles. Even to the smallest details have safety, durability and ease of wiring been considered. The electrical contractor-dealer can pin his faith to the Connecticut line.

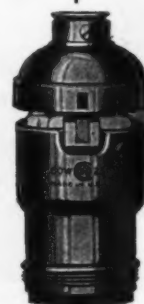
Here are some of the advantages in using the Connecticut sockets:

A shell and cap especially designed for fixture work including installation in husks.

Well balanced mechanisms of great durability and easily capable of carrying a heavy load electrically.

A finish and general appearance which is unexcelled.

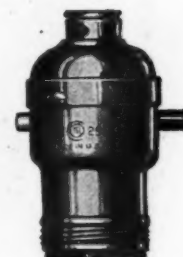
If you have not the complete data on this line, write for it today. Samples will gladly be furnished for examination and test including a socket wrench. Connecticut wiring devices are listed complete in Catalog No. 6. Shall we send you a copy?



No. 11060 Keyless Socket



No. 19050 Key Socket



No. 14050 Push Key Socket

Connecticut Electric Mfg. Co.

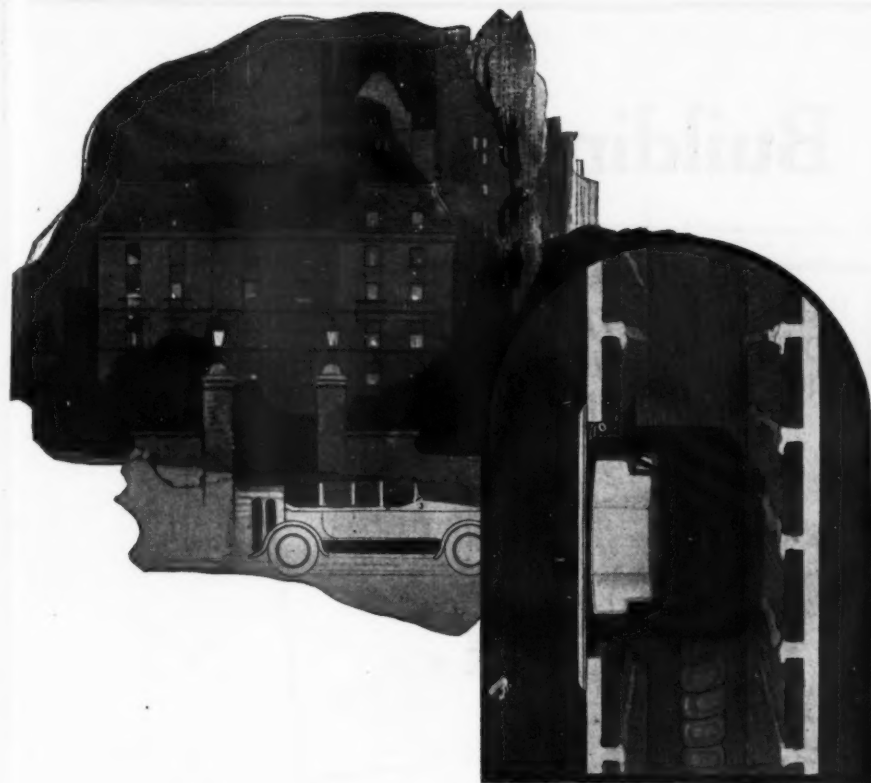
Office and Factory: Bridgeport, Connecticut

BRANCH OFFICES:

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Room 1120, Aeolian Bldg.,
33 West 42nd St.

CHICAGO
431 South Dearborn St.

SAN FRANCISCO
74 New Montgomery St.



THE SHALLOWEST LINE of FLUSH SWITCHES — ON THE MARKET

THE porcelain cup *but 1 inch deep* relieves the wiring jam in metal lath and shallow partition work. The newly gained space simply swallows up the problem of wiring in a 2-inch partition and an inch-and-a-half wall box!

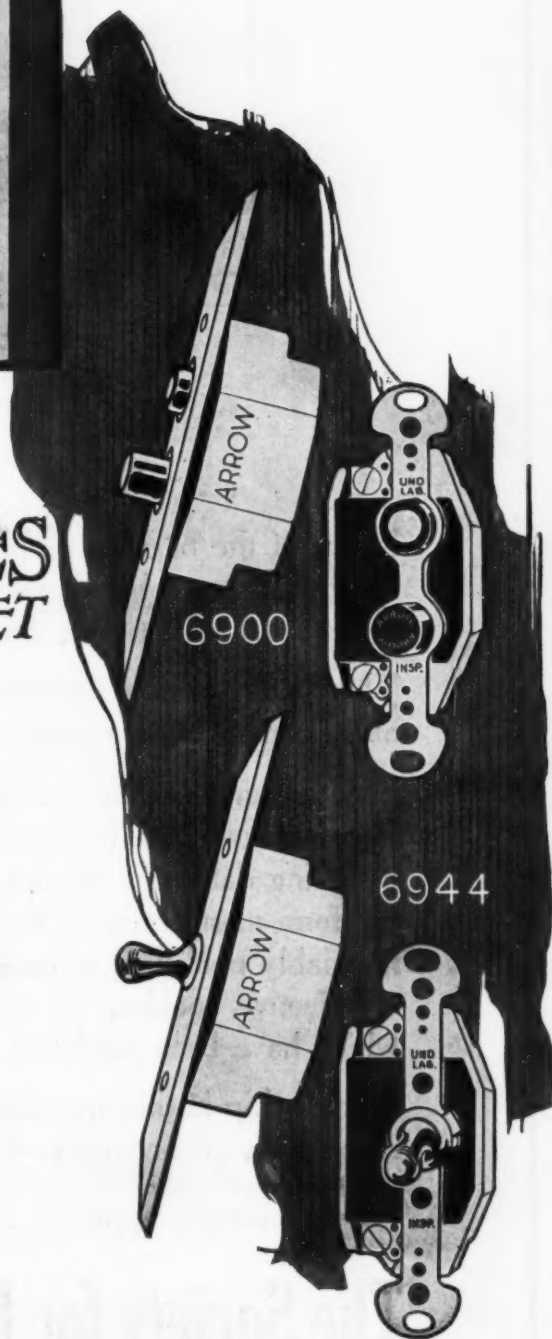
— So far the only switch suitable for all-round work and *specialized* for metal lath and plasterboard construction. Made shallow without loss in mechanical service or electrical safety; standard Arrow construction throughout.

The push-buttons have a stroke of a mere quarter inch, always setting at *right-angles* with the switch plate.

Arrow Shallow Flush Switches come in push-button and toggle types, in all the regular styles, and at no price-advance over the regular line.

THE ARROW ELECTRIC CO.,
HARTFORD, CONN.

 **ARROW**
The complete line of Wiring Devices



Business Building Booklets



Many of the business problems which confront the Contractor or Dealer can be answered by his own group organization and he, therefore, writes direct to 15 West 37th Street, New York City.

There are, however, problems arising daily for the answers to which he must turn to other reliable sources.

Such a source is *The Society for Electrical Development*, an organization representative of all groups in the industry, having many facilities for gathering data of a special character and a competent staff to collate it in the form most useful to the industry. This information when gathered is invariably published in booklet form, and the illustration shows a number of effective booklets, on subjects of interest to Contractors and Dealers, which have been produced by the Society.

Membership in this organization is well worth while and the cost, which is nominal, is an investment that every Contractor-Dealer should make.

For information apply to Staff Headquarters—

The Society for Electrical Development, Inc.

522 FIFTH AVENUE,

NEW YORK, N. Y.

Contractors much prefer a Loom that
will fish easily and cut cleanly.
That's why they specify

DURADUCT

DURACORD

solves the portable cord problem
by keeping electric tools on the
job. Its heavy woven cover pro-
tects the cord from injury.

TUBULAR WOVEN FABRIC CO.
PAWTUCKET, R. I.

NEW YORK OFFICE:
52 Vanderbilt Avenue

CHICAGO OFFICE:
549 W. Washington Blvd.

Pigs & Porcelain

CAN YOU DO THE SAME?

SAM SMITH operates a well known Electrical Contracting business in the east. One day he decided to hunt for "leaks." His profits were not so prominent as they had been. Sam's formula for cutting costs called for increased expenditures as the initial move. Every one around the place tapped their heads knowingly and decided that the "boss" had gone wild. Even the Jobber's Salesman threw up his hands in dismay, for here surely was a new type of buyer

But Sam never hesitated. He is a shrewd business man, not easily lead by theories but a firm believer in the "power of analysis." Did he increase his profits and reduce his costs? Did he find the secret of "good business practice" which many commercial men overlook? Did he unconsciously "set the pace" for others in the Electrical Industry to follow? That's for you to decide. Read this new and interesting book—

PIGS & PORCELAIN

It will tell you the whole story in real every day man fashion. It's sketchy and humorous in a way but in substance has value for all who read it.

We will be glad to mail a copy of this to any Contractor-Dealer, Executive Jobber, Jobbers' Salesman, Engineer, Electrician or in fact any one interested in the Electrical Industry.

THE BOOK IS FREE—BUT THE EDITION LIMITED

We suggest that you mail the attached coupon immediately to insure getting your copy

THE R. THOMAS & SONS CO.

EAST LIVERPOOL, OHIO, U. S. A.

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Northern Electric Co., Ltd., in Canada
Western Electric Co., Inc., on Pacific Coast

THE R. THOMAS & SONS CO., East Liverpool, Ohio

You may mail me a copy of "Pigs & Porcelain."

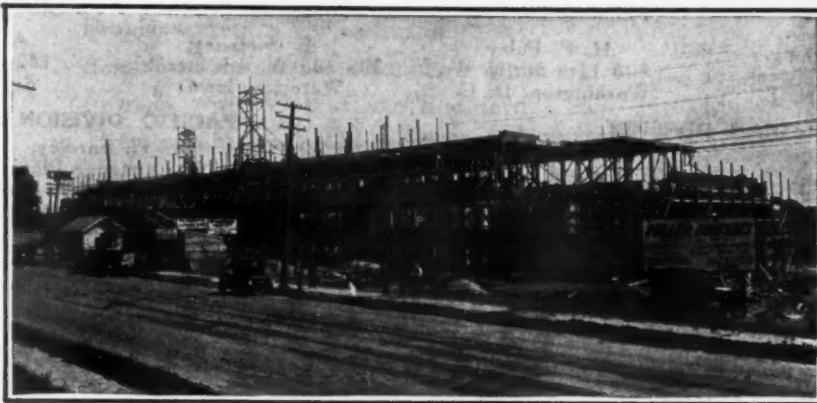
Individual Name

Firm Name

Individual Title

Mailing Address

SELECTION OF WIREMOLD CONDUIT BY THE FULLER BRUSH COMPANY FOR USE THROUGHOUT THEIR NEW MAMMOTH FACTORY REPRESENTS AN ENDORSEMENT OF ONE OF THE COUNTRY'S MOST PROGRESSIVE INDUSTRIAL ORGANIZATIONS



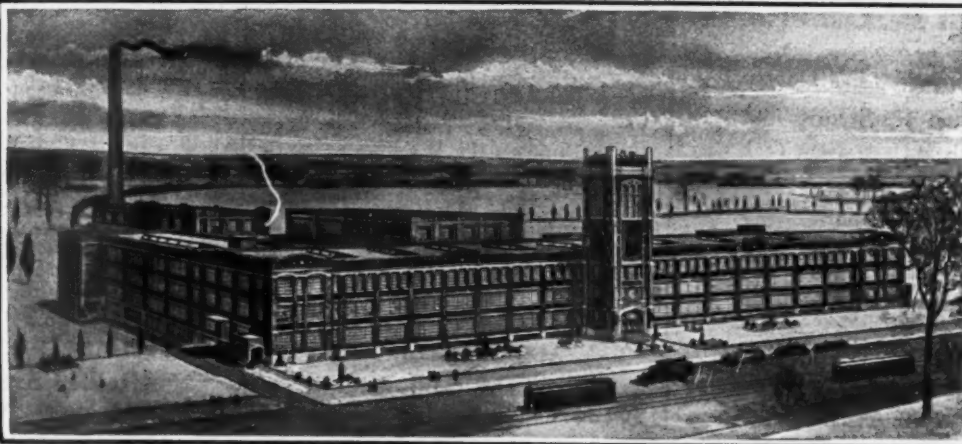
VIEW OF FULLER BRUSH CO FACTORY IN COURSE OF ERECTION AT HARTFORD, CONN



ELECTRICAL CREW INSTALLING WIREMOLD CONDUIT AS BUILDING IS BEING ERECTED



VIEW SHOWING WIREMOLD CONDUIT INSTALLED ON CEILING AND BEAMS OF FLOOR JUST AFTER BEING ERECTED



AS BUILDING WILL APPEAR WHEN COMPLETED

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*Deceased.

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UNIVERSAL DATA AND SALES BOOK

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ANNUAL CONVENTION, CINCINNATI, O., OCTOBER 11, 1922. EXECUTIVE COMMITTEE MEETING, OCTOBER 9, 1922

Paiste

Cutouts

"Edison Plug" Cutouts: Complete line for all service requirements ranging from our No. 2569 1-Wire Main Cutout to No. 2135 3-Wire Double Branch Cutout. Highest grade materials and construction throughout conforming with N. E. Code Standard. These cutouts are rated up to 30 Amperes at 125 volts.

Enclosed Fuse Cutouts: Line includes equipment for all usual wiring systems and conditions. Made in 10 types having a capacity up to 30 Amperes at 250 volts; and 6 types for 31-60 ampere service at 250 volts. Design conforms to N. E. Code Standard.

All "Paiste" 3-Wire Cutouts of both Edison Plug and Enclosed Fuse styles will be furnished with solid neutral without extra charge if so desired.

Outlet Box Receptacles

Made in fifteen styles and twenty-three types. Capacity, 660 watts at 250 volts.

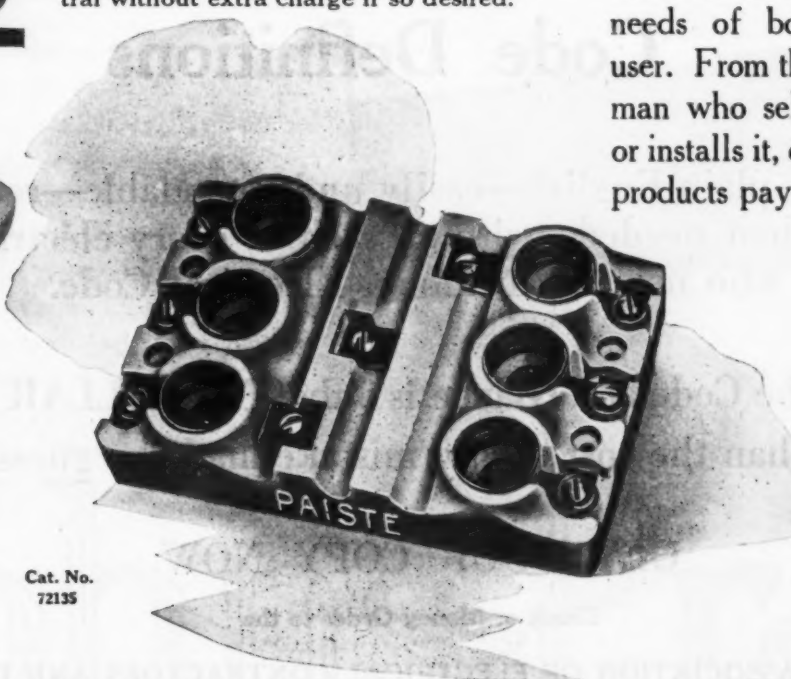
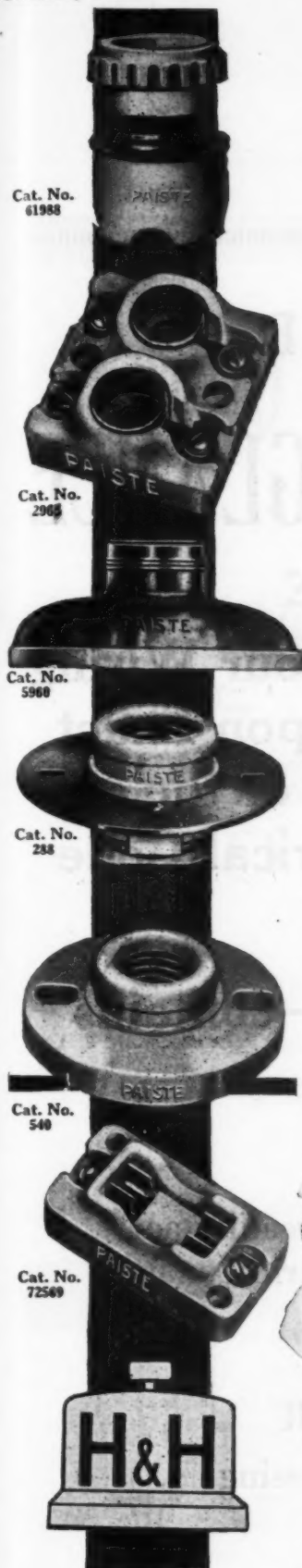
Perfectly finished to please property owners.

Cleverly designed for easy, quick installation—saves money for contractors.

Electrically correct in accordance with N. E. Code Standards.

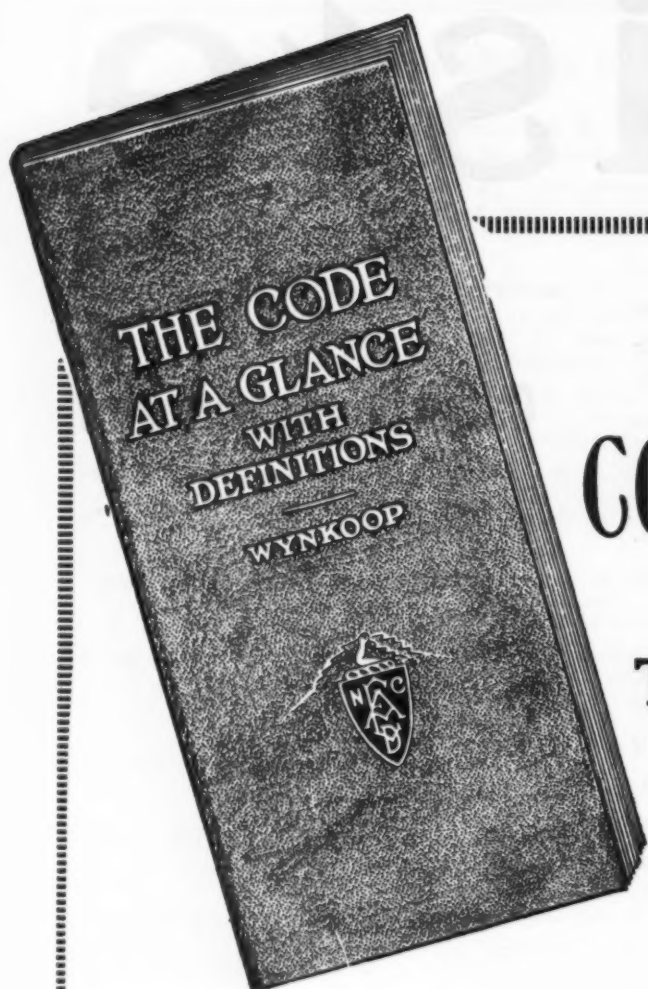
A complete line covering every usual need.

When you specify or purchase "PAISTE" Wiring Material you are sure of material that combines in its design and construction careful consideration of the needs of both contractor and user. From the standpoint of the man who sells wiring material, or installs it, or uses it, "PAISTE" products pay.



Cat. No.
72135

Hart & Hegeman Manufacturing Co., Hartford, Conn.



YOU NEED

a copy of the

CODE AT A GLANCE

BECAUSE

**The Quality of Your Wiring
Jobs Depend Upon Exact
Knowledge of the
National Electrical Code**

**This useful book—POCKET SIZE—contains
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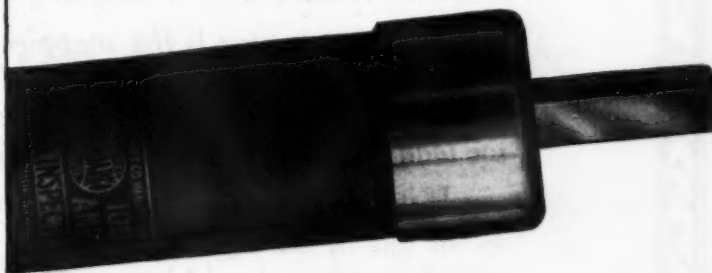
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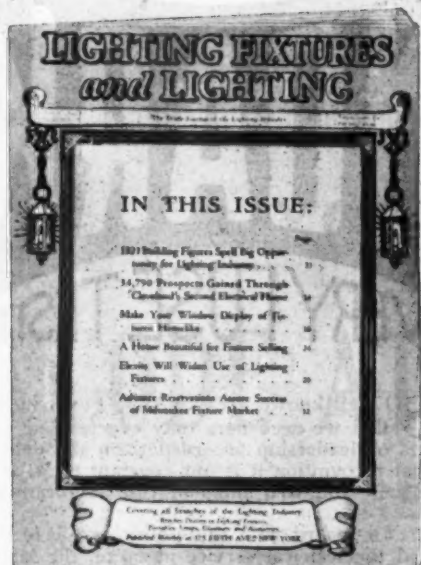


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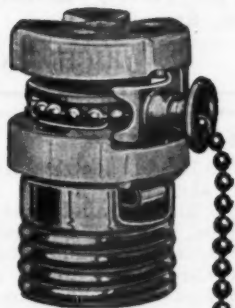
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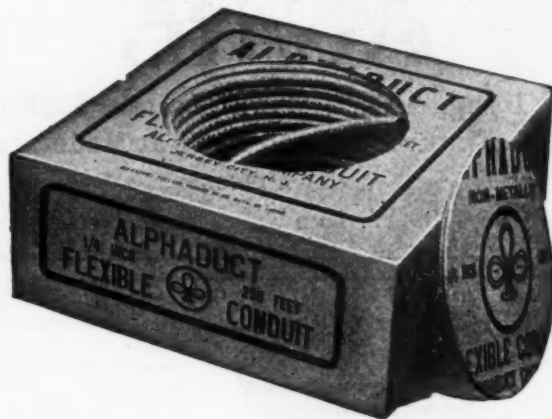
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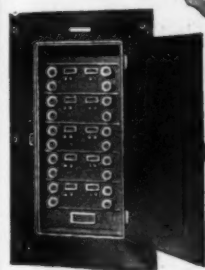
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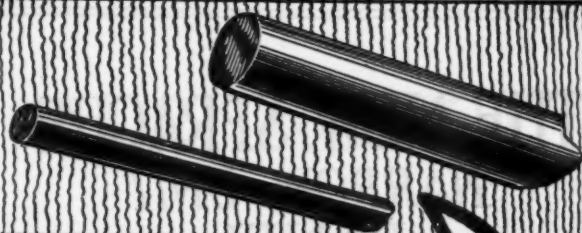
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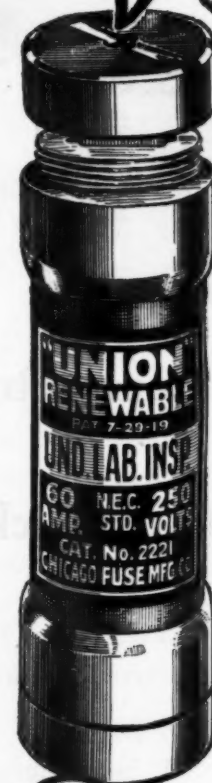
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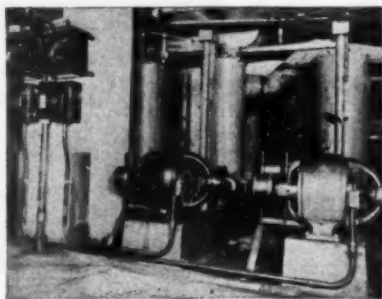
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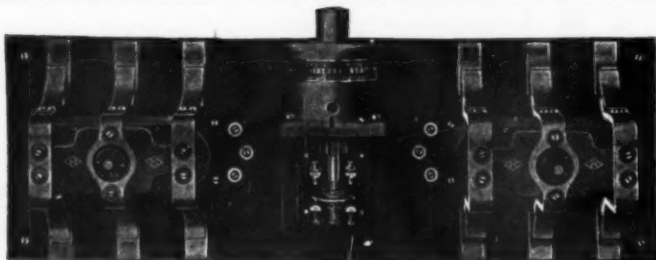
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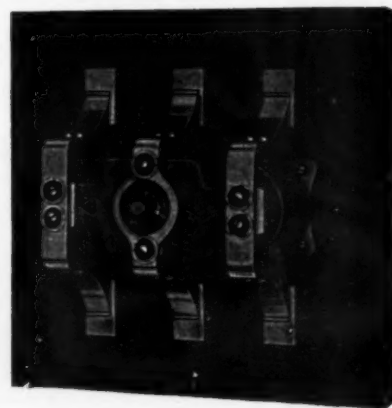
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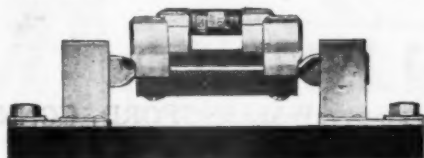
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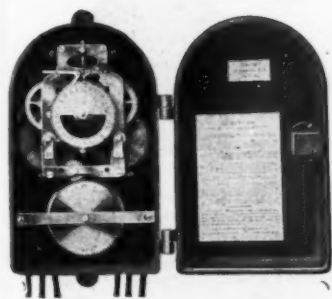
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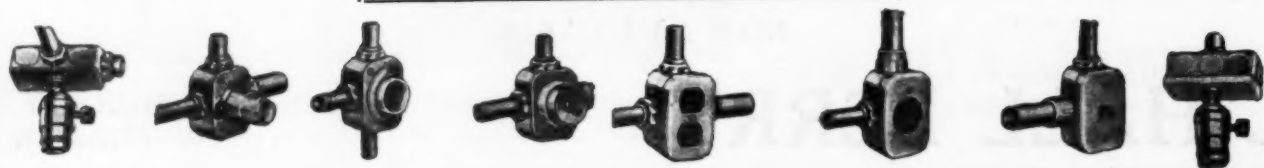
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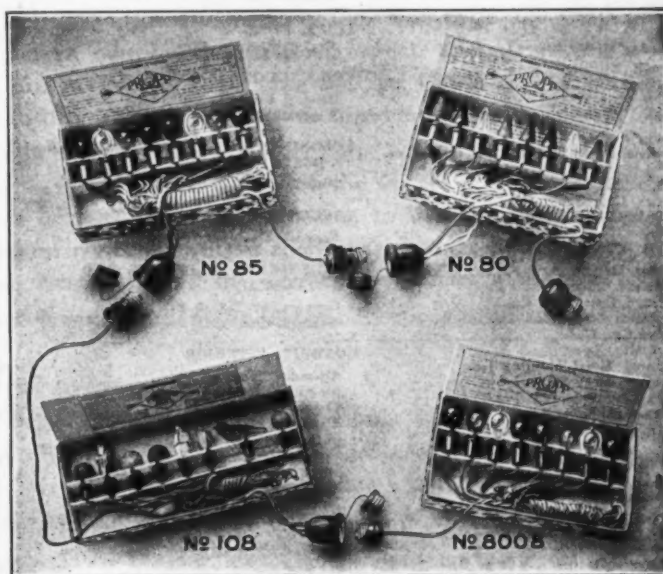
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Robbins & Myers Co.
Valley Electric Co.
Westinghouse Elec. & Mfg. Co.

CIRCUIT BREAKERS, AUTOMATIC

General Elec. Co.
Westinghouse Elec. & Mfg. Co.

CLAMPS, CABLE SUPPORTING

Steel City Elec. Co.

CLAMPS, GROUND CONNECTION

Columbia Metal Box Co.
Fralick & Co., S. R.
General Elec. Co.
Hart Mfg. Co.
Machen Elec't. Mfg. Co.
National Metal Molding Co.
Sprague Elec. Works.
Thomas & Betts Co.

CLAMPS TEST

Appleton Elec. Co.

CLEANERS, VACUUM

Western Elec. Co.

CLIPS, FUSE

Bryant Electric Co.

COILS, CHOKE

General Elec. Co.
Westinghouse Elec. & Mfg. Co.

COLORING AND FROSTING, INCAN-

DESCENT LAMPS
McGill Mfg. Co.

CONCENTRIC, WIRING FITTINGS

General Elec. Co.

CONDENSERS, TELEPHONE AND

TELEGRAPH
Connecticut Tel. & Elec. Co.
Western Elec. Co.

CONDUIT, INTERIOR

Alphaduct Co.
American Circular Loom Co.
Clifton Mfg. Co.
Enameled Metals Co.
National Metal Molding Co.
Short Elect. Mfg. Co.
Sprague Elec. Works.
Steel City Elec. Co.
Trumbull Elec. Mfg. Co.
Tubular Woven Fabric Co.

CONDUIT, UNDERGROUND

Johns-Manville, Inc.

CONNECTORS, BRASS CYLINDER

Bryant Elec. Co.
Frankel Connector Co.
Trumbull Elec. Mfg. Co.

CONNECTORS, EXTENSION CORD

Hubbell, Inc., Harvey.

CONNECTORS, FIXTURE

H. B. Sherman Mfg. Co.

CONNECTORS, SLEEVE

Bryant Elec. Co.

CONNECTORS, SOLDERLESS

Columbia Metal Box Co.
Dossert & Co.
Frankel Connector Co.
Westinghouse Elec. & Mfg. Co.

COOKING UTENSILS, ELECTRIC

Manhattan Elec. Supply Co.
Westinghouse Elec. & Mfg. Co.

COUPLINGS, SHAFT

General Elec. Co.

CUTOUTS

Arrow Electric Co.
Bryant Elec. Co.
Chicago Fuse Mfg. Co.
Columbia Metal Box Co.
Cutter Co., Geo.
Freeman Elec. Co., E. H.
General Elec. Co.
Johns-Manville, Inc.
Pass & Seymour, Inc.
Trumbull Elec. Mfg. Co.
Westinghouse Elec. & Mfg. Co.

DECORATIVE LIGHTING

General Elec. Co.

DYNAMOMETERS

Sprague Elec. Works

FANS, DIRECT CURRENT

Western Elec. Co.
Westinghouse Elec. & Mfg. Co.

FANS, HANGERS

Adam Electric Co., Frank

FANS, MOTOR

Century Elec. Co.
Emerson Elec. Mfg. Co.
General Elec. Co.
Manhattan Elec. Supply Co.
Robbins & Myers Co.
Sprague Elec. Works.
Western Elec. Co.
Westinghouse Elec. & Mfg. Co.

FARM LIGHTING GENERATORS

Valley Electric Co.

FIBRE

Johns-Manville, Inc.

FITTINGS, FIXTURE, IRON

Appleton Elec. Co.
Beardalee Chandelier Mfg. Co.
Benjamin Electric Mfg. Co.
Bryant Elec. Co.
Cutter Co., Geo.
Electric Appliance Co.
General Elec. Co.
National Metal Molding Co.
Sprague Elec. Works.
Steel City Electric Co.
Trumbull Electric Mfg. Co.
Westinghouse Elec. & Mfg. Co.

FIXTURES, SHOW CASES AND

WINDOWS

Benjamin Electric Mfg. Co.
National X-Ray Reflector Co.

FIXTURE STUDS

Fralick & Co., S. R.

FURNACES, ELECTRIC

General Electric Co.

FUSES, ENCLOSED

Bryant Electric Co.
Chicago Fuse & Mfg. Co.
General Electric Co.
Johns-Manville, Inc.
Westinghouse Elec. & Mfg. Co.

FUSES, OPEN LINK

Chicago Fuse & Mfg. Co.
General Electric Co.

FUSES, TELEPHONE

Chicago Fuse & Mfg. Co.
Western Elec. Co.

GENERATORS, LIGHT AND POWER

Emerson Elec. Mfg. Co.
General Electric Co.
Robbins & Myers Co.
Sprague Electric Works.
Westinghouse Elec. & Mfg. Co.

GLASSWARE

National X-Ray Reflector Co.

GUARDS, LAMP

Hubbell, Inc., Harvey.
McGill Mfg. Co.

HANGERS, ARC LAMP

Cutter Co., Geo.
General Electric Co.

HANGERS, CONDUIT AND CABLE

Appleton Elec. Co.
Columbia Metal Box Co.
Mineralac Elec. Co.
Pass & Seymour, Inc.
Steel City Elec. Co.
Thomas & Betts Co.

HANGERS, FIXTURE AND BOX

Cutter Co., Geo.

HANGERS, LAMP

Bryant Elec. Co.

HEATERS, LIQUID

General Electric Co.
Westinghouse Elec. & Mfg. Co.

HEATING DEVICES

Westinghouse Elec. & Mfg. Co.

HOLDERS, SHADE

Hubbell, Inc., Harvey.
National X-Ray Reflector Co.

HOLDERS, BATTERY

Ostrander & Co., W. R.
Stanley & Patterson.

INSTRUMENTS, INDICATING

General Electric Co.
Norton Electrical Instrument Co.
Westinghouse Elec. & Mfg. Co.

INSTRUMENTS, LAMP TESTING

General Elec. Co.

INSTRUMENTS, MINIATURE SWITCH

BOARD
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

INSTRUMENTS, POCKET

Connecticut Tel. & Elec. Co.

INSTRUMENTS, RECORDING AND

CURVE DRAWING
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

INSTRUMENTS, TESTING

General Elec. Co.
Westinghouse Elec. & Mfg. Co.

INSULATION, MOLDED

Johns-Manville, Inc.

INSULATORS, CANOPY

General Elec. Co.

INSULATORS, HIGH VOLTAGE

General Elec. Co.
Johns-Manville, Inc.
Westinghouse Elec. & Mfg. Co.

INSULATORS, TREE

Cutter Co., Geo.

IRONS, CURLING

Westinghouse Elec. & Mfg. Co.

IRONS, SOLDERING

General Elec. Co.

JOINTS, CABLE

Dossert & Co.

JOINTS, FIXTURE INSULATING

Thomas & Betts Co.

LAMPS, ARC

General Elec. Co.
Westinghouse Elec. & Mfg. Co.

LAMPS, AUTOMOBILE

Connecticut Tel. & Elec. Co.

LAMPS, INCANDESCENT

Edison Lamp Works.
General Electric Co.
Hubbell, Inc., Harvey.
Hygrade Lamp Co.
National Lamp Works.
Westinghouse Lamp Co.

LAMPS, PHOTO-ENGRAVING

General Elec. Co.

IN 1915 the Insurance Committee of the National Association of Electrical Contractors and Dealers investigated and recommended to their membership the plan of Insurance at Cost as conducted by Lynton T. Block & Co., of St. Louis.

Now in 1921, after six years of experience in dealing with this well known insurance organization, this same committee has expressed its continued unqualified satisfaction in the resolution contained on this page.

This resolution is therefore presented in this form for the benefit and information of the membership at large.

SIX YEARS OF SATISFACTION 1915-1921

SIX YEARS of satisfactory dealings with Lynton T. Block & Co., Underwriters, of St. Louis, has prompted your Insurance Committee again to go on record as endorsing their plan of insurance, with the attendant saving in money to our members.

Every Insurance Policy placed with this concern increases its ability to serve you better, both in the lowered rates it has influenced and the yearly saving it accomplishes. If the bulk of our members would avail themselves of this tangible advantage of membership, the saving made possible by the action of your Committee would probably total **Fifty Thousand Dollars Every Year**. Volume of business will do this. Your Insurance Committee has done its part; you should do yours and not only save money for yourself, but help your fellow members to save this enormous aggregate.

EVERY promise made by this underwriting organization has been more than faithfully kept, and the advantages have from time to time been increased without any solicitation or additional obligation on the part of the Assured.

Insurance with them costs less than it did six years ago, the coverage is more complete, and the savings are increased wherever deserved. The individual experience of the individual risk is now taken into account in determining the savings.

Inquiry addressed to Lynton T. Block & Co., Underwriters, St. Louis, Mo., or to the Secretary of your Association will bring full particulars regarding Insurance at Cost.

THE RESOLUTION SPEAKS FOR ITSELF—

RESOLUTION

Recognizing the insurance problems confronting this organization, and for the purpose of procuring the best indemnity at the lowest cost, the Executive Committee of this Association, after a careful and thorough investigation by its Insurance Committee in 1915, endorsed the plan of "Insurance at Cost," as conducted by Lynton T. Block & Co., Underwriters, of St. Louis, Mo., through their several Insurance organizations, and recommended to the members of this Association that they avail themselves of the saving in cost and the high character of service afforded.

WHEREAS, a large proportion of the members of this Association have for the past six years, carried their insurance through Lynton T. Block & Co., and found the saving in money to be substantial and the service to be highly satisfactory, and

WHEREAS, the Executive Committee deems these insurance arrangements to be among the important benefits which have been provided for members of this Association;

NOW, THEREFORE, BE IT RESOLVED, That the Executive Committee ratify its former endorsement of the Insurance and Service afforded by Lynton T. Block & Co. and urge upon those members not now taking advantage of it to lend their cooperation in this respect and communicate with the St. Louis Office of Lynton T. Block & Co. in matters pertaining to Fire, Casualty and Workmen's Compensation Insurance, with a view to adding momentum to this movement and securing for themselves the benefits which are made available for them.

BE IT FURTHER RESOLVED, That the Insurance Committee of the N. A. E. C. & D. finds the affairs of the various Insurance organizations of Lynton T. Block & Co. to be administered honestly and skillfully; financially sound and worthy of confidence; that each such organization has ample assets for the protection of its Policy Holders, being backed in each case by Assets in excess of \$2,000,000, which serves as a direct guarantee for the payment of losses and the elimination of any assessment liability whatsoever.

The Insurance Organizations herein referred to are:—

Employers Indemnity Corporation,
Utilities Indemnity Exchange,
Utilities Fire Exchange,
Exchange Mutual Indemnity Insurance Co.,

St. Louis, Mo.
St. Louis, Mo.
Kansas City, Mo.
Buffalo, N. Y.

(Signed) J. A. Fowler, Chairman Insurance Committee,
National Ass'n Electrical Contractors & Dealers.

BUYER'S GUIDE—Continued

LAMPS, TROUBLE, AUTOMOBILE,

PORTABLE, HAND
Connecticut Tel. & Elec. Co.
Stanley & Patterson.

LIGHTS, STAGE

Sprague Elec. Wks.
Western Elec. Co.
National X-Ray Reflector Co.

LOCKS, AUTOMOBILE

Connecticut Tel. & Elec. Co.

LOCKNUTS

Frailick & Co., S. R.

LUGS, TERMINAL

Cutter Co., Geo.
Dossert & Co.
Trumbull Elec. Mfg. Co.

MAGNETIZERS

Valley Electric Co.

MOLDED INSULATION

Cutler-Hammer Mfg. Co.
Johns-Manville, Inc.
Westinghouse Elec. & Mfg. Co.

MOLDINGS, METALLIC

Appleton Elec. Co.
National Metal Molding Co.

MOTOR GENERATORS

General Electric Co.
Sprague Elec. Wks.
Valley Electric Co.
Westinghouse Elec. & Mfg. Co.

MOTORS, POWER

Century Electric Co.
Emerson Elec. Mfg. Co.
General Elec. Co.
Robbins & Myers Co.
Sprague Elec. Works.
Valley Electric Co.
Western Elec. Co.
Westinghouse Elec. & Mfg. Co.

OZONIZERS, INDUSTRIAL

Sprague Elec. Wks.

PADS, HEATING

Landers, Frary & Clark.

PAINTS AND COMPOUNDS

D & W Fuse Co.
General Elec. Co.
Johns-Manville, Inc.
McGill Mfg. Co.
Minerallac Elec. Co.
Standard Underground Cable Co.

PANEL BOARDS

Adam Electric Co., Frank
Trumbull Electric Mfg. Co.
Westinghouse Elec. & Mfg. Co.

PERCOLATORS

Westinghouse Elec. & Mfg. Co.

PLANTS, LIGHTING

General Elec. Co.
Western Elec. Co.
Westinghouse Elec. & Mfg. Co.

PLATES, FLUSH SWITCH

Arrow Electric Co.
Bryant Elec. Co.
Connecticut Tele. & Elec. Co.
Hubbell, Inc., Harvey.

PLUGS AND RECEPTACLES

Arrow Electric Co.
Bryant Electric Co.
Chicago Fuse Mfg. Co.
Cutter Co., Geo.
Freeman Electric Co.
General Elec. Co.
Hart Mfg. Co.
Hubbell, Inc., Harvey
Johns-Manville, Inc.
Machen Elec. Mfg. Co.
National Metal Molding Co.
Pass & Seymour, Inc.
Sprague Elec. Wks.
Stanley & Patterson.
Trumbull Electric Mfg. Co.
Western Elec. Co.
Westinghouse Elec. & Mfg. Co.

PLUGS, SPARK

Western Elec. Co.

POLE LINE HARDWARE

Cutter Co., Geo.
Johns-Manville, Inc.
National Metal Molding Co.

PORCELAIN, STANDARD

General Elec. Co.
Trenton Porcelain Co.

PORTABLES

Beardslee Chandelier Mfg. Co.
National X-Ray Reflector Co.

POSTS, LAMP, ORNAMENTAL

Cutter Co., Geo.

POTS, MELTING

General Elec. Co.
Westinghouse Elec. & Mfg. Co.

PROJECTORS, ELECTRIC

Cutter Co., Geo.
General Elec. Co.
National X-Ray Reflector Co.
Western Elec. Co.

PROTECTORS, LINEMEN'S

Minerallac Elec. Co.

PROTECTORS, THREAD, CONDUIT

Enameled Metals Co.

PROTECTORS

Connecticut Tel. & Elec. Co.
Minerallac Elec. Co.
Partrick & Wilkins Co.
Stanley & Patterson.

PUSH BUTTONS

Machen Elec. Mfg. Co.

RADIATORS, ELECTRIC

Westinghouse Elec. & Mfg. Co.

RADIO APPARATUS

Stanley & Patterson.
General Electric Co.

RANGES, ELECTRIC

Westinghouse Elec. & Mfg. Co.

REFLECTORS

National X-Ray Reflector Co.

REFLECTORS, PORCELAIN, ENAM.

ELED, IRON AND STEEL
Cutter Co., Geo.
Hubbell, Inc., Harvey.

REGULATORS, VOLTAGE

General Elec. Co.
Westinghouse Elec. & Mfg. Co.

RHEOSTATS

General Elec. Co.
Valley Electric Co.
Westinghouse Elec. & Mfg. Co.

ROSETTES

Adapti Mfg. Co.
Arrow Electric Co.
Bryant Elec. Co.
Crouse-Hinds Co.
Freeman Elec. Co., E. H.
General Elec. Co.
Hubbell, Inc., Harvey.
National Metal Molding Co.
Pass & Seymour, Inc.
Trumbull Electric Mfg. Co.

SAMOVARS

Westinghouse Elec. & Mfg. Co.

SHADES, METALLIC

Hubbell, Inc., Harvey.
Ostrander & Co., W. R.

SIGNALS, FACTORY AND OFFICE

Stanley & Patterson.

SIGNS, EXIT

Sprague Elec. Wks.

SOCKETS AND RECEPTACLES

Appleton Elec. Co.
Arrow Electric Co.
Cutter Co., Geo.
Freeman Electric Co., E. H.
General Elec. Co.
Hubbell, Inc., Harvey.
Johns-Manville, Inc.
National Metal Molding Co.
Ostrander & Co., W. R.
Pass & Seymour, Inc.
Sears, H. D.
Stanley & Patterson.
Trumbull Electric Co., Inc.

SOLDERLESS CONNECTORS

Frankel Connector Co.

SOLDERING COMPOUNDS

Westinghouse Elec. & Mfg. Co.

STARTERS, MOTOR

General Elec. Co.

STERILIZERS, WATER, ELECTRIC

Sprague Elec. Wks.

STOVES, DISC

Westinghouse Elec. & Mfg. Co.

STRAPS AND CLAMPS, CONDUIT

Frailick & Co., S. R.

SUPPLIES, ELECTRICAL

Adam Electric Co., Frank.
Electric Appliance Co.
Fullerton, F. W. L.
Ostrander & Co., W. R.
Stanley & Patterson.
Western Electric Co.

SWITCHBOARDS, LIGHT AND POWER

Adam Electric Co., Frank.
Bryant Electric Co.
Cutter Co., Geo.
General Elec. Co.
Sprague Elec. Wks.
Trumbull Elec. Mfg. Co.
Westinghouse Elec. & Mfg. Co.
Wurdack Elec. Mfg. Co.

SWITCHES, BABY KNIFE

Bryant Elec. Co.
General Elec. Co.
Trumbull Electric Mfg. Co.

SWITCHES, BATTERY

Hubbell, Inc., Harvey.
Manhattan Elec'l Supply Co.
Ostrander & Co., W. R.
Partrick & Wilkins Co.
Trumbull Electric Mfg. Co.

SWITCHES, DISCONNECTING

General Electric Co.
Westinghouse Elec. & Mfg. Co.

SWITCHES, FIXTURE

Hubbell, Inc., Harvey.
Pass & Seymour, Inc.

SWITCHES, KNIFE

Adam Elec. Co., Frank.
General Elec. Co.
Hart Mfg. Co.
Trumbull Elec. Mfg. Co.
Westinghouse Elec. & Mfg. Co.

SWITCHES, SAFETY

Adam Elec. Co., Frank.
General Elec. Co.
Johns-Manville, Inc.
Trumbull Elec. Mfg. Co.

SWITCHES, SNAP

Arrow Electric Co.
Connecticut Tel. & Elec. Co.
General Elec. Co.
Hart Mfg. Co.
Hubbell, Inc., Harvey.
Machen Elec. Mfg. Co.
National Metal Molding Co.
Pass & Seymour, Inc.
Trumbull Electric Mfg. Co.

SWITCHES, TIME, AUTOMATIC

General Elec. Co.

SWITCHES, VOLTMETER

Frank Adam Electric Co.
Trumbull Elec. Mfg. Co.

TAPE, INSULATING

Bishop Gutta-Percha Co.
General Elec. Co.
Johns-Manville, Inc.
N. Y. Insulated Wire Co.
Westinghouse Elec. & Mfg. Co.

TAPS, CURRENT

Hubbell, Inc., Harvey.

TELEPHONES

Connecticut Tel. & Elec. Co.
Stanley & Patterson.
Western Elec. Co.

TERMINALS, CABLE

Standard Underground Cable Co.

TERMINALS, TELEPHONE

Standard Underground Cable Co.
Western Elec. Co.

TERMINALS, UNDERGROUND

SERVICE
Dossert & Co.

TOASTERS

Westinghouse Elec. & Mfg. Co.

TOOLS, BORING, ELECTRICIAN'S

Electric Appliance Co.
Stanley & Patterson.

TOOLS, COMMUTATOR TRUING

General Elec. Co.

TOOLS, PORTABLE, HAND

General Elec. Co.

TRANSFORMERS

Connecticut Tel. & Elec. Co.
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

VULCANIZERS, ELECTRIC

Westinghouse Elec. & Mfg. Co.

WARMERS, FOOT AND RUG

Westinghouse Elec. & Mfg. Co.

WASHERS, CLOTHES

Western Elec. Co.

WASHERS, DISH

Western Elec. Co.

WELDING MACHINES, ELECTRIC

General Electric Co.
Westinghouse Electric & Mfg. Co.

WIRE, ANNUNCIATOR AND OFFICE

American Steel & Wire Co.
General Elec. Co.
Hazard Mfg. Co.
Standard Underground Cable Co.

WIRE, ARMORED CABLE

Hazard Mfg. Company.
National Metal Molding Co.
Sprague Elec. Wks.

WIRE, AUTOMOBILE

General Elec. Co.
Indiana Rubber & Ins. Wire Co.
N. Y. Ins. Wire Co.
Rome Wire Co.
Safety Ins. Wire & Cable Co.

WIRE, BARE COPPER

Hazard Mfg. Company.
Rome Wire Co.
Standard Underground Cable Co.

WIRE, FUSE

Appleton Electric Co.
Chicago Fuse Mfg. Co.
General Elec. Co.

WIRE, GALVANIZED STRAND

Hazard Mfg. Company.

WIRE, IRON

American Steel & Wire Co.

WIRE, LEAD ENCASED

American Steel & Wire Co.
Atlantic Ins. Wire & Cable Co.
Bishop Gutta-Percha Co.
General Electric Co.
Hazard Mfg. Co.
Indiana Rubber & Ins. Wire Co.
N. Y. Insulated Wire Co.
Standard Underground Cable Co.
Western Elec. Co.

WIRE, MAGNET

American Steel & Wire Co.
Ansonia Electrical Co.
General Electric Co.
Hazard Mfg. Co.
Rome Wire Co.
Standard Underground Cable Co.
Western Electric Co.

WIRE, RUBBER COVERED

A. A. Wire Co.
American Steel & Wire Co.
Atlantic Ins. Wire & Cable Co.
Belden Mfg. Co.
Bishop Gutta-Percha Co.
Boston Ins. Wire & Cable Co.
Detroit Insulated Wire Co.
General Electric Co.
Habirshaw Elec. Cable Co.
Hazard Mfg. Company.
Indiana Rubber & Ins. Wire Co.
N. Y. Insulated Wire Co.
Rome Wire Co.
Standard Underground Cable Co.
Western Elec. Co.

WIRE, TELEPHONE

A. A. Wire Co.
Rome Wire Co.
Western Electric Co.

WIRE, WEATHERPROOF

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Ansonia Electrical Co.
General Electric Co.
Hazard Mfg. Co.
Rome Wire Co.
Western Elec. Co.

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As a member of the National Association having the exclusive right to use the term Electragist as a trade mark, you are in possession of a power potent to crush unfair competition. By adopting the term you are recognized by the public as a business establishment giving your customers **quality service**—service that is safe, sure and satisfactory.

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Pending the time of the National Convention in October when the proposed amendments to the constitution will be considered relative to the change of name of the Association and the issuing of a standard emblem embodying the new title, it is urged that this design be universally adopted by members.

Send remittance to

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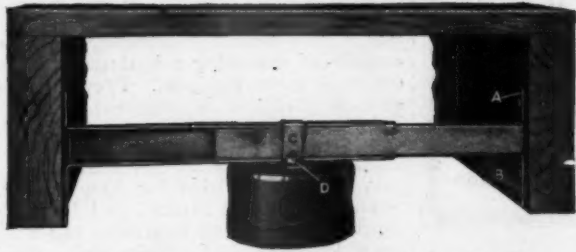
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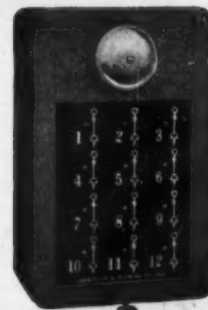
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For Sale—Well established electrical business in city of 3,000 in Wisconsin. A good opportunity for the right man. Need more room for growing import business, reason for selling. Address: The Chas. Ruedebusch Co., Mayville, Wisconsin. It 9

For Sale—Electrical Contracting business, wholesale and retail supplies, machinery and completely equipped repair shop doing an extensive business in western New York. Average profits, \$30,000 a year. Will sell at inventory, on account of illness. Address: Box K, c/o NATIONAL ELECTRAGIST, 15 West 37th St., New York City. It-6

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For Help Wanted
For Situations Wanted

RATE :
\$1.00 Per
One Inch Insertion

For Sale—Due to need of additional capital to handle rapidly increasing business, will sell stock in, or entire business of electrical contracting and merchandising amounting to \$110,000 in 1921. This year doubling same months last year. In fastest growing city in South; now 50,000 population. Address: Box H, c/o NATIONAL ELECTRAGIST, 15 West 37th Street, New York City. It-7

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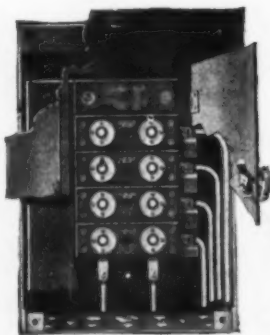
Situation Wanted—Young electrical engineer, two years testing experience with Westinghouse Electric & Manufacturing Company, now holding responsible position with electrical trade paper, desires position with electrical contractor. Future possibilities first consideration. Best of references can be furnished. Address: Box J, c/o NATIONAL ELECTRAGIST, 15 West 37th Street, New York City. It-10

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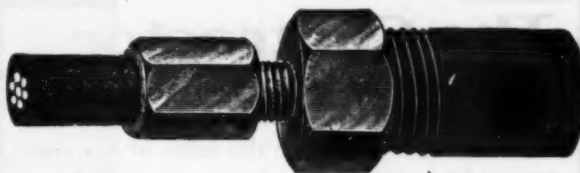
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This is the way to
connect ground wires to
the end of a pipe



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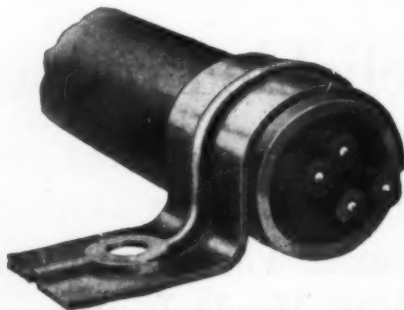
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(The One-hole Pipe Clamp)



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1/4"	.516	10 lbs.	500	1.10
3/8"	.675	3 lbs.	100	1.30
1/2"	.840	4 lbs.	100	1.40
3/4"	1.050	4 1/2 lbs.	100	2.00
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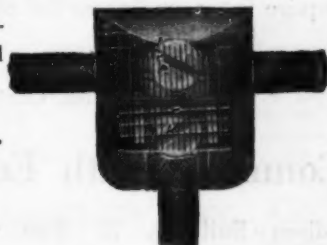
No solder—no blow torch
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time and trouble elimin-
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Let your men start using Walgers—
They don't need a tool bag—Simply
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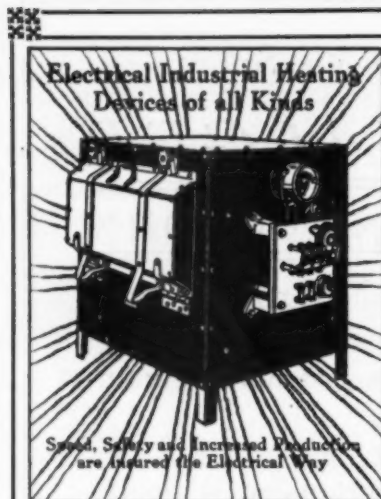
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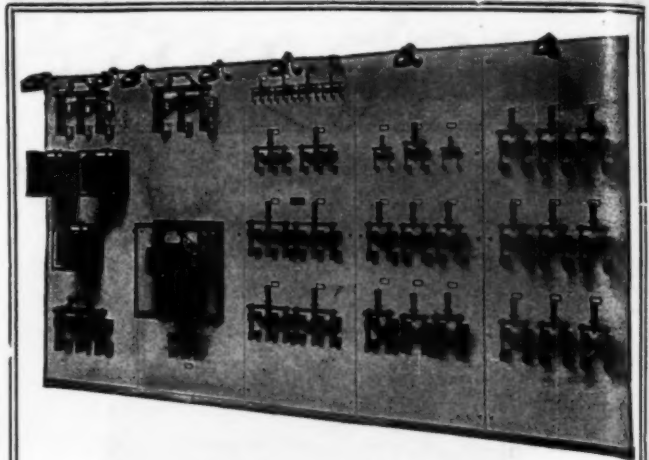
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Every person connected with your business should
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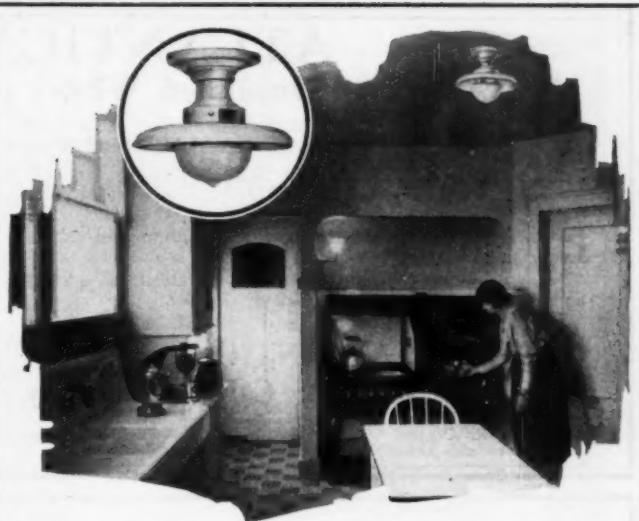
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Insulated wire and cable for every transmission purpose—not made to meet a price, but with the idea of rendering maximum service to the purchaser and of reflecting maximum credit to the contractor who uses it.

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SALEM MASS





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Buy Conduit Fittings by this mark. They are better than others and cost no more.

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FOR EVERY ELECTRICAL PURPOSE

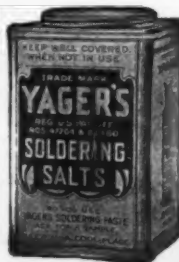
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Buy it of your Jobber in $\frac{1}{2}$ lb., 1 lb., and 5 lb. Blue and White Enameled Cans. Ask for new 1922 prices.

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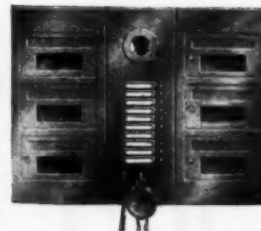
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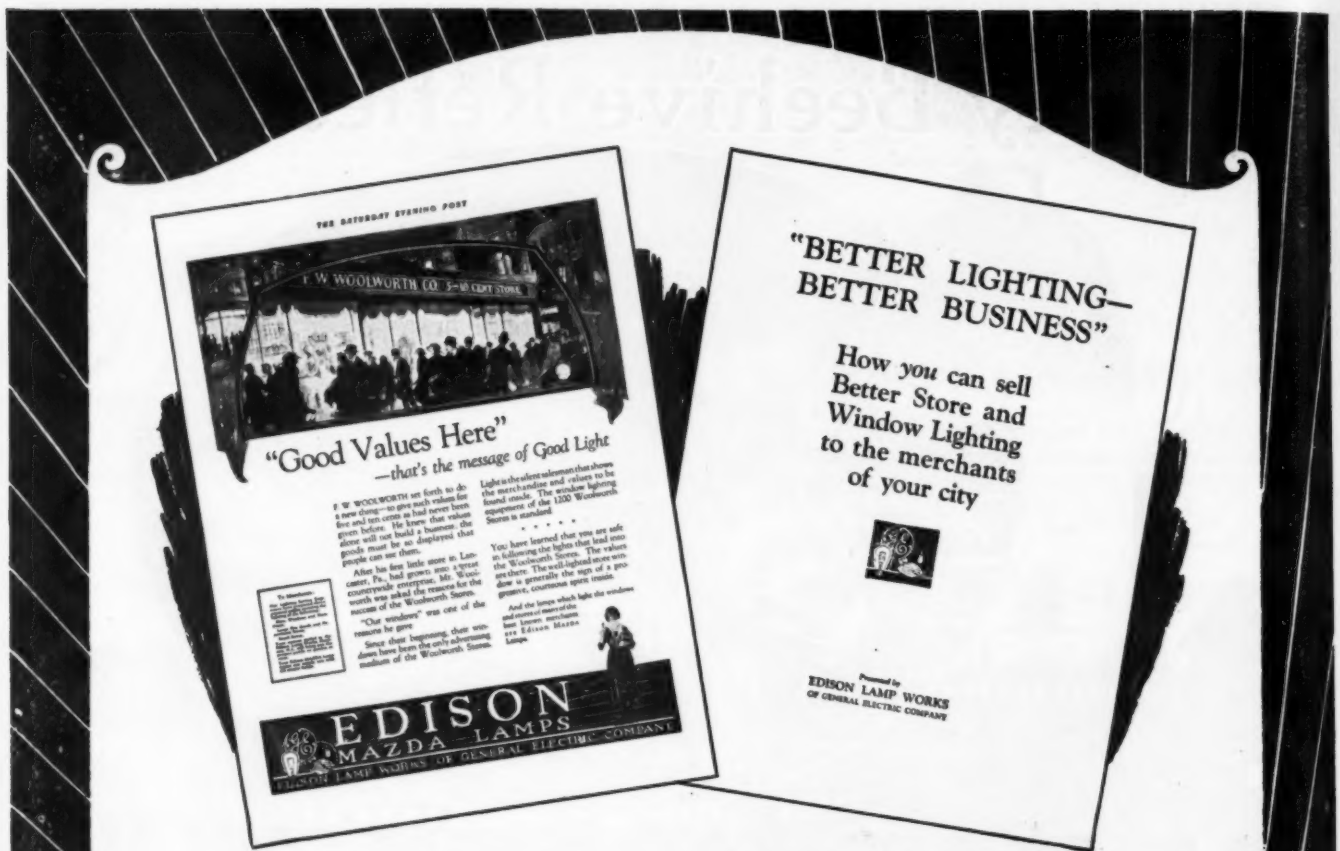
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Engineers in all principal cities



This full page advertisement in two colors in the Saturday Evening Post for September 16, is the fourth in a special series to make merchants better prospects for better lighting.

This Portfolio contains a complete working plan for developing profitable store lighting business and is available to any Edison MAZDA Lamp Agent who will use it. If you want to go after this profitable business write us today.*

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The nation-wide store lighting campaign
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The merchants are ready for solicitation. The fall

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For Radio Service Supplement and National Electragist combined, Enclose \$2.

Name

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(Always Have Your Magazine Sent to Your Home Address)

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RADIO SERVICE SUPPLEMENT TO THE NATIONAL ELECTRAGIST

PUBLISHED ON THE FIRST OF EVERY MONTH

All Communications Should Be Addressed to
NATIONAL ELECTRAGIST RADIO SERVICE SUPPLEMENT
15 West 37th Street, New York City

Yearly subscriptions to the National Electragnet, which includes The Radio Service Supplement as a part of its regular issue, \$2 a year; Radio Service Supplement bound separately, \$1 a year.

National Electragnet, formerly Electrical Contractor, was established 21 years ago as the official journal of the National Association of Electrical Contractors & Dealers.

Number One

JUNE, 1922

Ten Cents a Copy

ANNOUNCEMENT

PRESENTED herewith is the first issue of the RADIO SERVICE SUPPLEMENT, which forthwith becomes a regular feature of the NATIONAL ELECTRAGIST.

In addition to the publication of this special section of the magazine proper, something like two thousand or more copies, as conditions demand, will be bound separately and mailed to distributors of radio equipment who are not so fortunate as to be subscribers at the present time.

The aim of RADIO SERVICE SUPPLEMENT is to cater to the needs of retailers of radio—whatsoever devices and appurtenances may now exist or in the future may be created, will be included.

The radio retailer is a new factor in merchandising. He came into being only yesterday. The result of recent developments in the field of radio brought forth a demand from the public. At the present time this is being supplied by established retailers. It is not believed that additional stores will be opened to any great extent for the exclusive merchandising of this new product.

But it behooves the established retailers of radio to become better acquainted with this strange commodity which has become such a large factor in their present plans. The industry is in its infancy. Changes are rapidly taking place. How is the best way to handle the subject? What of the future?

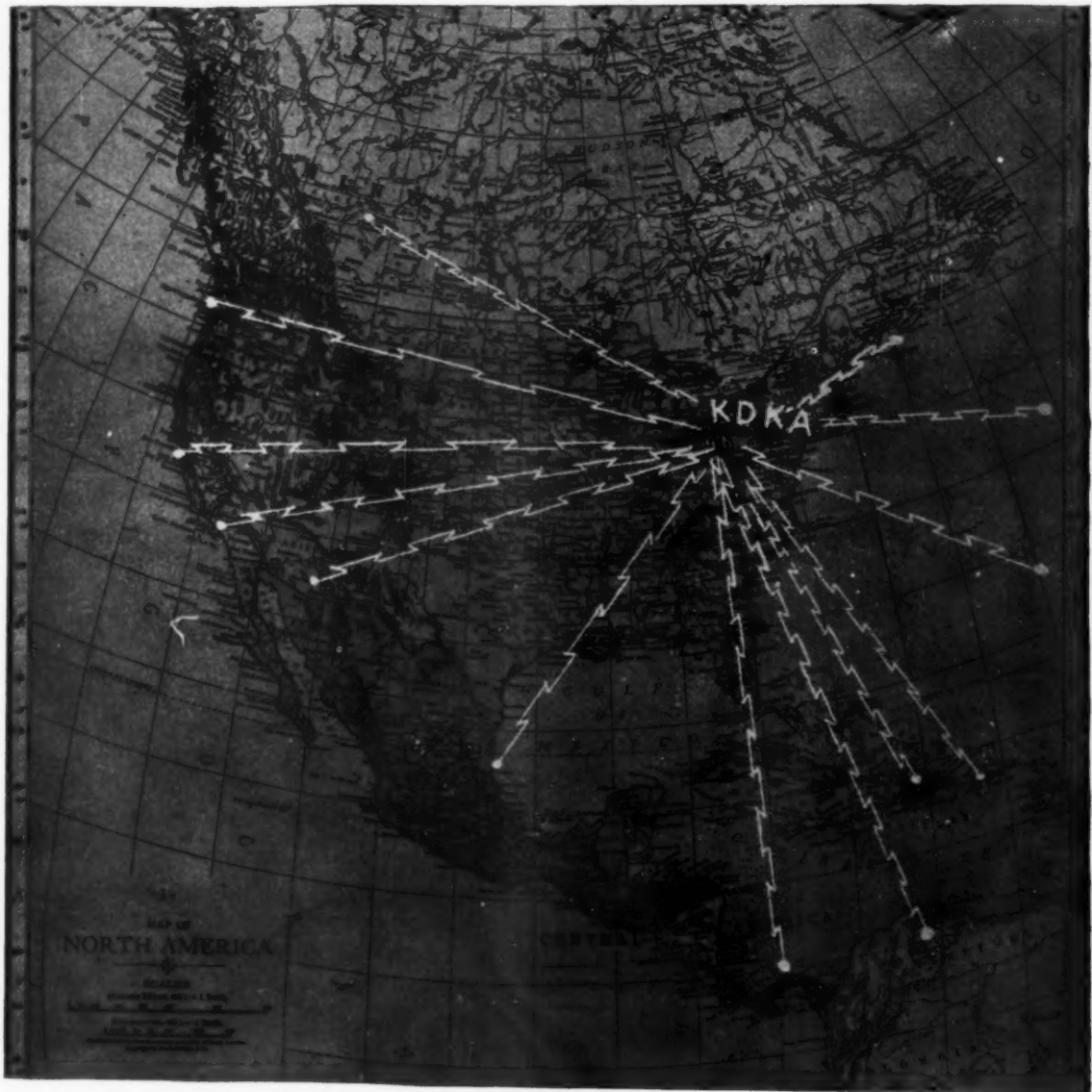
Such questions are to be answered in future issues of this RADIO SERVICE SUPPLEMENT. All possible information concerning the merchandising of radio goods will be handled in order to make more business and better business for radio retailers.

Those who are engaged in the retailing of radio equipment are invited to join our circle of readers. Each monthly issue will contain information worth many times the yearly subscription rate. New subscriptions are solicited.

PUBLISHER'S NOTE—Due to the difficult task of preparing a presentable first issue, this number of Radio Service Supplement has been unavoidably delayed. Hereafter it will be mailed during the first week of each month, and copy should be in our hands no later than the fifteenth of the month preceding date of issue.

Radio Reaches Uttermost Ends of Earth

Accompanying Map of North American Continent
Affords Means of Visualizing Expanse Covered Locally



These lines radiating from East Pittsburgh, where station K D K A is located, show the great distance at which programs of entertainment traveling in the ether have been heard. This of course by no means marks the limit of their travel as the points marked on the map are only those from which accurate reports have been received. Reports show that concerts go out in a circle having a radius of about 2,000 miles.

—Courtesy Westinghouse.

Radio Opportunities for the Electragist

Popular Interest Offers the Electrical Contractor-Dealer Splendid Opportunity to Merchandise Radio to a Ready Made Market

Radio telephony offers to the ultimate consumer the possibility of amusement and self advancement. Not many people buy or make radio outfits with the prime idea of advancing themselves. They buy or make for amusement primarily. The self advancement is forced on them and it is brought about in two different ways. In the first place, the broadcasting stations today are sending out in their programs, lectures, talks and explanations on various topics. Health, radio instruction and other topics are there to be listened to. The listener either has to hear what is said whether he likes it or no, or he can disconnect his apparatus.

The second means of self advancement is the most important. It is the instruction that the owner receives while he is setting up or operating the various mechanisms. He is learning more about electricity. He is learning circuits and about positives and negatives and storage batteries and he is perhaps finding out for the first time something about the care and operation of a storage battery unless he has previously been an automobile owner.

With these two features, amusement and advancement, radio interest is not likely to get less as time goes on. Changes will be made in broadcasting methods and in the programs sent out so that receiving will be both more satisfactory and of greater interest and use. It has been predicted by some few that radio is a fad and that it will die out. It will not die out until something else comes along which will not only take its place but which will be better.

The bicycle as an amusement did not suffer until the automobile came to take its place. The bicycle is not dead at that either. More bicycles are being sold today than in the heyday of the bicycle's prosperity. If something comes along in years to come to attract people from radio, it is safe to predict that more radio equipment will be sold at that time than is being sold today.

The Merchandising Angle

We have looked briefly into the interest of the owner of radio equipment. Let us now glance at the merchandising side of radio. It does not take much sales effort to sell radio today. The

market is short and dealers find it difficult to keep merchandise on the shelves. It is probably no exaggeration to state that a large proportion of the sales being made are on order because the dealer cannot get the goods from the manufacturer. And the manufacturer is in turn helpless because he has seen a modest production shot to pieces by an exorbitant demand that neither he nor anybody else ever dreamed of.

This is a situation that will take care of itself when production is able to come somewhere meeting the demand. Manufacturers are speeding up production on all lines and already the situation of supply is clearing somewhat, although there is still a vast amount of material to be manufactured before the situation can be called satisfactory.

The most important problem in the radio field is the one of merchandising and service. At the present time radio apparatus is being sold by all kinds of dealers. Hardware stores, department stores, drug stores, stationery stores, novelty stores, and electrical stores are all selling. It seems that any kind of a store that stocks the goods can sell and make a profit. But that is a condition that cannot last.

It is conceded that the drug store, for instance can sell a radio set as easily any other kind of an establishment, but what about service? Is the druggist in a position to advise the customer as to the installation of the apparatus? Can he tell him the range and limitations of the various kinds of equipment? Perhaps he can in exceptional cases. But the fact remains that there is one class of merchant who is especially equipped to give satisfaction and service to the radio purchaser and that is the electrical contractor-dealer.

In the first place he knows electricity. Although he may not have made a study of the radio branch of the electrical industry, the very fact that he is thoroughly grounded and has practical experience to back him in electricity gives him a tremendous advantage in acquiring radio knowledge.

In the second place the electrical contractor-dealer has in his establishment some of the electrical equipment that is used in installing radio sets. The antenna is nothing more than copper wire. The ground wire and the various wire

for hooking up the apparatus can be taken right out of house wiring stock.

Knows the Trade

The electrical contractor-dealer has the further advantage of having a regular line of customers or clients whose names he has on file. He is constantly doing new wire work for different people and he is doing rewire work, alterations, bell installation, outlet installation and all kinds of work for other people and he therefore has a live list of prospective customers for radio apparatus. This list the drug store and the department store does not have as a rule.

When radio sales reach a stage that takes them out of the order class and puts them in the sales class, the drug store and the novelty store will have to stand aside for the real merchandising of the electrical contractor-dealer.

Radio merchandising has a lot of repeats to it. In order to understand this, let us take a glance at the general principles of the units and how they work out in the hands of the owner.

There are two general classes of receiving sets which may for convenience be divided into those that require no batteries and those that do require batteries. The sets requiring no batteries are the cheaper outfits ranging in price from \$7 to \$25 or perhaps a little higher. These are known as crystal sets and their operation is very simple and the installation is quite easy. A simple crystal set with an outdoor antenna will pick up broadcasting and messages for a distance of about 15 miles. This figure will vary somewhat with the type of set, the length of the antenna and the interference of trees, houses or other objects.

Where an indoor aerial is used the range is reduced to about 5 miles and a loop aerial will still further reduce the range, probably to a distance of not over 3 miles. A loud speaker cannot be used with a crystal set except for very short distances, not over 2 or 3 miles. Even this is not satisfactory and the use of a loud speaker is not recommended at all with a crystal set.

Of the sets requiring batteries there are several kinds—vacuum tube set and vacuum tube set with two stage amplification. The simple vacuum tube set is operated by dry batteries, and when

operated with an outdoor aerial it has a range of about 75 miles. When an indoor aerial is used the range is reduced to 25 or 30 miles and with a loop aerial the range is still further reduced to about 10 miles. A loud speaker used in connection with an outdoor aerial will be successful only for distances of about 5 miles.

A vacuum tube set with two stage amplification will operate successfully up to 75 miles with an outdoor aerial. With telephone receivers the distance is increased to probably 150 or 175 miles. As a rule loop aeriels are not used with this kind of a set.

Sets which will operate for distances in excess of 150 or 175 miles employ radio frequency amplification. Such sets make use of a loop about three feet square wound with a number of turns of wire and hooked up with radio frequency amplifiers. The loop reduces the static and interference because it cuts out all signals except those directly in line with the winding of the loop. The loop is pivoted and can be swung around in any direction to receive the messages.

Wrong Ideas Set Right

There has been so much misunderstanding regarding the possibilities of radio that it is to correct these misconceptions that this brief statement of radio possibilities is given. Some purchasers are made to understand that they can get broadcasting half way across the continent with a simple crystal set and that they will be able to use a loud speaker and hear the concerts all over the house. Radio sold on this basis is badly sold and cannot help but cause the purchaser to go elsewhere for his future apparatus.

The repeats that were spoken of a few paragraphs back are in the nature of larger and more powerful sets. As a rule a man makes his original investment in a crystal set. Radio is something new to him and he is not going to risk very much of his money in it. He installs the set, has a lot of fun and amusement and satisfaction from it. Then he gets ambitious. The one or two broadcasting stations that he has been getting are not sufficient. He wants to go further and be able to hear broadcasting from half a dozen stations.

So he buys a vacuum tube set or a vacuum tube set with two stage amplification. With this he has to put batteries and tubes. There is a constant buying of equipment. If he has telephone receivers, he wants a loud

speaker. And so on. When a man has once bought a set he is almost in the same position as the owner of a phonograph who has to buy new records all the time to get any enjoyment out of it.

Then there is constant desire on the part of the purchaser to learn more about his own apparatus and the possibilities of other apparatus. He will buy books on radio and a dealer can make a tidy profit carrying a stock of books. These books in turn lead to the purchase of more equipment so there seems to be no limit to the thing.

Will Give Service Helps

It is not possible in the space available here to go deeply into the technical side of radio apparatus. It is our desire to show the possibilities of a profitable business to the electrical contractor-dealer. For the dealer who is already familiar with radio and perhaps handling it already we shall in future issues publish merchandising and service helps which will assist him in increasing his sales. For the dealer who has not as yet gone into radio, we suggest the study of any one of a number of excellent books on the subject and the taking of a course in radio at some school or institution.

It must be clearly understood that there are two classes of buyers of radio equipment. One of these classes consists of electrical novices who buy complete sets ready for installation. Such buyers as a rule know little of radio or electricity and realizing this, prefer to have the complete equipment ready to put up and use. It is to this class that the drug store and the novelty store can cater to exclusively.

There is another class which is of considerable importance and that consists of men with some knowledge of electricity or of radio who prefer to make their own sets. There is probably as much if not more profit in this kind of sales as in the sales of complete sets. Such men require many small units, wire, binding posts, receivers, vacuum tubes, switches and all the small articles that go to make up the complete equipment.

Such men are "come back" buyers even more than the purchasers of complete sets because often the equipment does not work out just right. The coil is not just right or something is wrong with the condenser and in perfecting the equipment more purchases have to be made.

Profits in Repeat Orders

It is a well known fact that the profit

in merchandising any article whether it be safety pins or automobiles, that the repeat orders make the most profit for the concern. As a rule the first buyers are secured at the expense of advertising, personal salesmanship, letters, etc., but the repeat orders, due to satisfaction with primary purchases, have no expense attached to them and therefore make more profit for the concern.

It therefore behooves the merchandiser of radio equipment to give the utmost satisfaction to the first purchaser because if satisfied he is coming back for more. First purchasers can be secured in the following ways:

1—*People coming into the store for other merchandise and attracted by displays or demonstrations of radio apparatus.*

2—*Advertising in local newspapers.*

3—*Good will created by the dealer joining local radio clubs, lending or demonstrating radio apparatus at meetings or lecturing on the uses and possibilities of radio.*

4—*Publication of broadcasting programs provided the local newspapers do not carry this feature.*

5—*Circular letters or printed folders mailed to regular customers in other electrical equipment.*

6—*Personal salesmanship as occasion arises.*

The electrical contractor-dealer should be prepared to advise customers as to correct installation of apparatus. This is a service that must be given to insure repeat business. He must know how aeriels should be put up and where satisfactory operation cannot be secured he should be able to stand behind the goods and the advice so that the purchaser can get the right kind of operation. This is a service that is not required in many lines of goods the uses of which are better understood, but it is required of radio. The automobile is subject to the same kind of service problem and it has been met by the automobile people in their own way.

One thing that is bothering people more than anything else at the present time is the subject of lightning and its effect on the aerial and on insurance. The underwriters have been working on an amendment to the code to cover radio equipment and it is published elsewhere in this section.

As a matter of fact there is no more danger of the aerial attracting lightning and bringing it into the house than there is of the telephone wires or the electric light wires attracting lightning. Of course all wires leading into the house should be protected by some form of lightning arrester because when lightning does strike a wire it will cause damage if not carried off to a ground outside. Inside aerials are not subject to any hazards by lightning.

These points are mentioned here because many prospective purchasers of radio equipment are fed upon a lot of lightning conversations and the question will be asked many times of the radio merchandiser. He should know the code and be familiar with the conditions so that he can answer these questions fully, knowingly and truthfully.

Length of Aerials

The subject of aerials or antenna should also be studied carefully. There is an impression among amateur radio enthusiasts that the longer the aerial, the the greater the range of the set. This is partly true but there is a limit. The aerial should be at least 75 feet long to get the maximum efficiency from the set. The maximum length depends more or less on the kind of set and the construction of the other parts. It is generally said that an aerial over 150 feet is not only useless but positively detrimental to successful operation. There have been cases of aerials 300 or 400 feet long over which reception was almost impossible. The height should be at least 50 feet and should be clear as far as possible of trees, chimneys or other houses. The end of the aerial furtherest from the instruments should be preferably higher than the instrument end although this is not necessary.

A horizontal aerial will give good satisfaction. The insulation must be perfect and the lead in must be either soldered or otherwise connected metallically so there will be a positive contact that will not corrode or introduce resistance into the line. Ground contact must be positive and a good connection with a water pipe generally serves the purpose admirably. Where it is not possible to ground to a water pipe, a buried ground is the next best thing. This consists of a number of piece of pipe driven into the ground or a copper plate buried in the ground. Either of these grounds should be down far enough that the ground is moist to give a good contact. Surrounding the ground with coke is good.

The receiving set should be placed as close as possible to the aerial. In other words the lead in should be direct and short for the best results.

Handling Storage Batteries

One new piece of apparatus that the electrical contractor-dealer will be called upon to handle is the storage battery. This can be handled in two ways. The dealer can handle the whole thing himself or he can make arrangements with a regular battery station to handle it for him.

The handling of batteries entails the charging of them also. Batteries are sometimes shipped from the factory dry and have to be filled with electrolyte

and sometimes they are delivered already filled. The electrolyte consists of sulphuric acid and distilled water in proportions to make a solution of 1.280 gravity, this being tested with a hydrometer. Batteries gradually lose their charge whether used or not and to prevent damage to the plates must be kept fully charged at all times. To allow the battery to run down means sulphation of the plates with consequent plate damage.

Small charging sets or larger ones can be purchased to charge batteries from alternating current. These sets are rectifiers which change the alternating current to direct current. Besides the



Not Everybody Has Pleasure of Radiophoning as Does Little Rita Rogan, Famous Movie Star, Who Unselfishly Insists that Dolly Share Joy of Listening in to Music Humming Through Her Marvel Radio Outfit

use of these by the dealer for his own batteries he will find a certain amount of sale of the single units to purchasers a ready means of profit. The battery subject is not really a difficult one but some knowledge of battery operation and maintenance is required.

We have said nothing here of transmitting radio because the merchandising of this apparatus is of a more limited nature. For every amateur who wants to send there are ten thousand who want to receive. The sending apparatus is more costly and subject to certain governmental regulations and where there is a call for apparatus of this nature the dealer should familiarize himself with the conditions.

Finally, the successful radio dealer must know the limitations of the apparatus he is selling; must know the broadcasting stations in his vicinity; and must be able to advise the purchaser exactly what to expect from the apparatus. On this depends his success and his profit from the sale of radio apparatus.

Radio in Kentucky

New Broadcasting Station Installed By
Electragist

Paducah will have the second installation of a radio broadcasting station in Kentucky, the first one being in Louisville, in the office of a newspaper.

J. A. Rudy and Sons recently closed a contract with the General Electric Co., through the Home Electric Co., for one of their latest type 500 miles broadcasting machines and for a receiving instrument that will catch the broadcasts of every big radio plant in this country and the one in Scotland. Shipment is promised in a few weeks and Rudys hope to have the station operating within a month.

Both the Home Electric Co. and Rudys will put in complete radio departments, selling the small machines of limited area and the larger ones as well.

"It is our intention," said Henry Rudy, "to start broadcasting about 10 in the morning and continue at intervals during the day. At night we shall have attractive programs also, which can be caught by any one within a radius of 200 miles. We believe, in fact we know a broadcasting station in Paducah will be of great value to the community and we shall endeavor to make it just as valuable as possible.

"Radio is one of the most sensational

developments of the age, and its use and popularity is spreading like the proverbial prairie fire. Six months ago, there were about 50,000 receiving instruments in this country. Today, it is estimated there are near a million. It is predicted that almost every home will have one in time, and especially will they be of value to the folk in the country because they can catch the market quotations every afternoon, the weather reports and after supper enjoy a delightful program of music and other interesting features."

"The installation of a broadcasting instrument by Rudy's marks an epoch in radio use in West Kentucky," said Roy Katterjohn of the Home Electric Co. "There are just a world of small amateur radio equipments around Paducah, receiving outfits that can't catch broadcasts from the big stations, and they will be able to receive everything a station in Paducah sends out. We shall have a complete radio department, and we plan to give particular attention to the amateurs. We shall have complete outfits as well as every part the man or boy who wishes to build his own radio equipment wants."

Modify Radio Regulations

The National Board of Fire Underwriters recently made public, through its bulletin, *Safeguarding America Against Fire*, tentative regulations covering radio receiving installations that disclose considerable modification as compared with the requirements previously issued by fire underwriters.

The specifications were drawn up by a special committee of the National Fire Protection Association, which is the authority for the National Electrical Code and whose findings are standards of engineering practice. Besides the underwriting organizations represented upon this special committee, engineers acting for the American Radio Relay League, American Telephone and Telegraph Company, Radio Corporation of America, and the Independent Telephone Association, also participated.

The new rules are being published as proposed amendments to be included in future editions of the Code. It is stated that the requirements contained in the current edition of the code were based largely on the hazards incident to the equipment of wireless telegraph transmitting stations where antennae of considerable height and length were used and where the hazard of high potential equipment had to be considered.

The recent widespread installation of radio telephone receiving sets has necessitated a revision of the regulations. The receiving set having an indoor antenna is considered devoid of hazard. With any receiving set, the publication says the principal danger is from lightning brought in over the antenna to the equipment, or to some part of the building. Where there is no exterior antenna this hazard is removed.

Regulations covering sending and receiving stations have been drawn up and copies may be secured from the National Board of Fire Underwriters, 76 William Street, New York City.

Electragist Handling Radio

In agreeing that the electrical contractor-dealer is the logical outlet for the distribution of radio supplies to the public, J. E. Smith, president of the National Radio Institute at Washington, D. C., says:

I believe that it is a good policy for the electrical contractor-dealer to handle this business, since much of the material is now carried in stock by the ordinary electrical business.

For example the aerial wire is nothing more than the ordinary copper wire or seven strands of No. 22, while the lead-in wire is ordinary No. 14 rubber-covered insulated wire, the switches and other parts are very much the same, and the proper installation of aerial and insulation from all metallic parts of the building and the good grounding of the receiving sets are all familiarities to the electrical contractor-dealer.

There is no one better qualified to erect this aerial, run the lead-in wire into the room and see that it is properly insulated and that all the wires are properly installed, than the electrician. It requires only a little study on the part of the electrical contractor-dealer to become familiar with the different types of apparatus and the talking points of each, and surely he can have his electricians trained to make the radio installations in the proper manner better than anyone else and I surely think it is the part the electrical contractor-dealer should play in this future development.

Since it is the large electrical companies, like the Westinghouse and General Electric who are putting this apparatus on the market, if they are going to take the lead in the manufacture and distribution, surely the electrical contractor-dealer should assist in seeing that the installations are properly made.

Mr. Dealer:

The combined circulation of these papers is—

3,843,600

NEW YORK GLOBE	CHICAGO TRIBUNE
" " MAIL	CHICAGO DAILY NEWS
" " WORLD	SAN FRANCISCO
" " TELEGRAM	CHRONICLE
" " TRIBUNE	PITTSBURGH POST
NEWARK SUNDAY CALL	PITTSBURGH DISPATCH
PHILADELPHIA	SCHENECTADY
INQUIRER	GAZETTE
WASHINGTON TIMES	ALBANY PRESS
BALTIMORE SUN	BOSTON HERALD
CLEVELAND PLAIN	BOSTON GLOBE
DEALER	MINNEAPOLIS TRIBUNE
SIOUX CITY TRIBUNE	MILWAUKEE SENTINEL
OAKLAND TRIBUNE	POPULAR SCIENCE
RADIO WORLD	RADIO
RADIO NEWS	MOTION PICTURE NEWS
EXHIBITORS TRADE	RADIO BROADCAST
REVIEW	
NATIONAL ELEC-	
TRAGIST	

This is a partial list of papers we are using in our national advertising campaign.

RADIO FOR BEGINNERS

160 pages 200 illustrations

One Dollar

RADIO DICTIONARY

50 Cents

HOW TO BUILD YOUR OWN RADIO SET

25 Cents

These books are by James R. Cameron—whose text books are used by the U. S. Dept. of Public Instruction—and Boards of Education throughout the world.

—ATTRACTIVE DISCOUNTS—

THE TECHNICAL BOOK CO.

130 West 42d Street, New York

SIGN OF



LONG LIFE

What Have You To Offer

to gain the good will and confidence of your customers? Isn't it true that a nationally advertised product tends to build customer confidence for you.



Ace Radio Batteries

"The Power Behind the Phone"

are widely advertised in consumer publications throughout the country. And better yet, they are advertised by word of mouth, by the thousands that are using them and find them to be "The Effectively Superior Radio B Battery."

LONGER LIFE

BETTER SERVICE

Ace dealer cooperation is in keeping with the superior quality of the product.

Your Jobber Carries Ace Batteries

Write us for interesting particulars.

Manufacturers of Radio and Flashlight Batteries

Ace Battery M'f'g Corp.

NEW YORK CITY

General Office: 495 Broome St.

Factory: 359 W. Broadway

Report on Radio of National Association

Committee Takes Up Subject With View of Ascertaining if Field is Proper One for Electragists

B. H. Bendheim, chairman of the Committee on Merchandising and Industrial Relations of the National Association of Electrical Contractors and Dealers, submits the following report:

At the recent meeting of the executive committee, the matter of the radio situation was referred to the chairman of the Committee on Merchandising and Industrial Relations. The executive committee put the question as to whether radio work was a proper field for the electrical dealers, and if so how should they start out in it. This report will adhere to this question, and will not deal with the scope of radio nor its technical features.

In examining this question the first thing which impresses one is the hysterical demand which exists for radio apparatus throughout the country. A situation such as this might be taken at first thought to be very favorable. However it has its disadvantages.

It encourages everyone with a selling organization in any line of trade to enter the field and it also encourages any manufacturing concern to start in to make the parts which the regular electrical factories are unable to supply in sufficient quantities.

The demand of the public for radio devices has caused dealers in phonographs and other musical devices to become somewhat apprehensive, some believing that the radio outfit may supplant the talking machine. This has given musical concerns an incentive to enter the radio field, and consequently they are bringing considerable pressure to bear on radio manufacturers to supply them with equipment. Mail order houses, furniture houses, automobile accessory dealers, hardware dealers, etc., also are clamoring for radio instruments.

Up to the present the principal radio distributing company handles its output largely through the electrical trades, but it is not their policy, however, to confine their distribution to electrical people solely. Since the electrical industry has had the first opportunity to handle this class of merchandise, it is up to them to take advantage of their favorable position and demonstrate that they can do a good job for the public and the manufacturers.

Electragists Are Logical Outlet

Despite the fact that concerns outside this industry are striving to get a foothold in the selling of radio apparatus, the electrical dealers should get into this business at once. They have, by virtue of being in the electrical business, a distinct advantage in this situation as the public recognizes radio as an electrical proposition and they look naturally to the electrical dealers first. So that the electrical dealers have in the beginning a tremendous advantage over any other purely commercial institutions.

However unless the electrical dealers immediately educate themselves in radio, they will gradually lose out in the competition with these larger mercantile institutions. In other words, unless the electrical dealer through his present technical knowledge and through further education in this subject can render a distinct service to his customer, then he cannot compete with these larger mercantile institutions who have larger sales organizations and can outstrip him

if the matter becomes just merely a proposition of selling a piece of furniture regardless of results.

It is therefore apparent that the greatest need in the present situation is the need of education. The concerns who are going to sell radio need to educate themselves. And there is a great need of educating the public as to the limitations of radio which at the present time they do not understand. Unless the public is made to understand that radio has its limitations there will be a reaction which will eventually be detrimental to this industry. Furthermore the disappointment which customers will feel at getting unsatisfactory results with an improper installation will react unfavorably against the concern which made the installation.

Jobbers' and Dealers' Discounts

The Radio Corporation of America is handling exclusively the output of the radio devices of the General Electric Company, the Westinghouse Electric and Mfg. Company, and others, and they constitute the largest distributing agency of radio apparatus in the country. For the present the policy of the Radio Corporation of America will be to market its devices through the wholesale distributors. Retail electrical distributors will have every opportunity to handle radio devices if they so desire. At present wholesale distributors are obtaining a maximum discount of 40 per cent. The retail distributors obtain a discount of 25 per cent in dealing with regular wholesale distributors of the Corporation. This discount of 25 per cent although not large is enough under present conditions to pay a good profit owing to the rapid turnover which it is possible to make, and to the fact that there is no sales resistance at the present time. The original idea was to require every retailer to place an initial order of \$2,500 if the dealer wished to place his order with the Radio Corporation direct. Owing to the existing shortage in parts, a retailer may often make satisfactory arrangements with a wholesale distributor without the necessity of complying with this requirement.

A new and complete catalog which will include a full set of instructions will soon be ready for distribution. Price to retail distributors will probably be about 75 cents each. Another book (Dealers Help) which will be a complete book of instructions for confidential use by the dealer will be published shortly. These books will be given to jobbers who in turn will pass them on to their dealers. In addition to this the dealers should put in an application to buy a number of sets of the new catalog both for their own instruction and for the instruction of their prospective customers. At the present rate the supply of these books will be taken up quite rapidly after they come out.

In order to make a permanent success of the radio branch of his business the retailer must employ an expert or must himself become one on this subject. He should give the most careful thought to the sale and installation of his radio products and should organize a small service department which will not only install radiophone and broadcasting sets but will train his customer to adjust same to obtain proper operation and results.

Dealer Should Educate Himself

Dealers should familiarize themselves with the limitations in the satisfactory operation of radio sets. For exam-

RADIO SERVICE SUPPLEMENT

MANUFACTURERS

DISBECKER & CO.
INC.

DISTRIBUTORS

15 W. 35th St., New York

Standard Radio Parts and Supplies

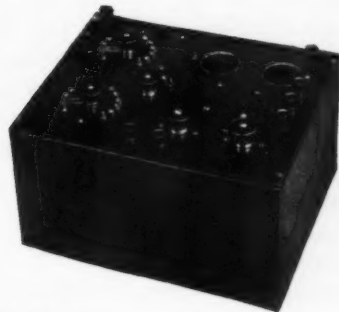
Disbecker Console Cabinet

Contains our complete receiving outfit with Western Electric Loud Speaking Telephone Outfit, batteries and accessories. May be attached to outdoor or indoor aerial.



PROMPT DELIVERY

By placing your order with us you will have the unusual experience of prompt delivery, not only of units, parts, but complete sets in quantity.



Western Electric Loud Speaker

The quality is due to special design of component parts. Music and speech is reproduced with perfect fidelity. All characteristics, inflections and modulations of speaker's voice are accurately preserved.

DEALERS!

Attractive discounts. It will pay you to get in touch with us on everything in radio.

DISBECKER & CO.
Everything Electrical for the Home

15 WEST 35TH STREET, N. Y.

Disbecker

D.M. 2 Tuner and Amplifier

Covers full range of broadcasting wave lengths. Completes the Western Electric Loud Speaking Telephone Outfit.

RADIO 40% PROFITS

Dealer's Opportunity of the Hour—

Radio Supplies Sell Like Hot Cakes

The radio craze is on. Millions of receiving sets are being built by amateurs. Almost every schoolboy is constructing his own radio receiving apparatus. The real profits are being made in supplying the amateur with his needed parts such as detectors, condensers, wire, etc.

SELL RADIO PARTS AND SUPPLIES

Technical knowledge is not necessary. Anybody can sell them. Most buyers point out exactly what they wish. You merely hand it to them. Sells on sight.

COMPLETE DEALER ASSORTMENTS—Includes window and counter display cards to which the smaller items are tacked, named and priced. Consists of standardized staple parts needed by every amateur, and interchangeable with all leading makes. Every item is a live seller such as tuning coils, binding posts, detectors, condensers, and dozen of other necessary items in an assortment of sizes to suit every buyer.

LIST PRICE, COMPLETE ASSORTMENT.....\$100.00

Based on uniform standard list prices adopted nationally by all reliable manufacturers.

DEALER'S DISCOUNT 40%\$ 40.00

NET COST TO DEALER.....\$ 60.00

NOTE:—Other assortments list at \$150.00 and up and take the same 40% discount as above. We recommend the above. REPEAT ORDERS OR FILL INS TAKE THE SAME 40% DISCOUNT.

Terms:—15% cash with order, balance by express C. O. D.

Mail your order now. Be one of the first to cash in on radio's popularity. IMMEDIATE DELIVERY.

SALESMEN—WRITE FOR PROPOSITION.

CORONA ELECTRIC CORP.

265 Canal Street

New York City, N. Y.

ple they should be particularly familiar with the decreased range of broadcasting transmitting stations during the summer time and the interference occasioned by static discharges. They will have to be careful to explain to the customer the difference between daylight and night range of radio receiving sets; namely, that the set which will provide 200 miles reception in daylight may during the night hours of the months from September to May provide good signal audibility up to 1600 miles. Receiving installations within 100 miles of the average broadcasting stations will obtain satisfactory results throughout the year.

The public has an idea that radio receiving is a very simple proposition. The writer has heard it expressed that an antenna put up in any way will suffice. For example a wire dropped down inside a chimney, wires stretched in a basement, wires on the back porch, were all mentioned as possible satisfactory antennae. And in one case a man was said to have gotten radio music out of his bed springs. The public will have to be educated away from these misconceptions. In order to do this properly the dealer must educate himself first. This subject of radio installation is not as simple as it appears. If the electrical dealers will take the lead in making correct installations, they will at once have a higher standing than the other concerns who make any kind of an installation that produces some sound.

The dealer should obtain some books on this subject for the enlightenment of his staff. These books can best be obtained from the Wireless Press, Inc., 326 Broadway, New York.

In Chicago the Electrical Contractors Association have instituted classes in radio for the education of their members. They employ an expert on this subject to give them illustrated lectures once a week in the evening. These talks are financed by the Association. This procedure is producing excellent results.

Recommend Better Grade Sets

In general it is the suggestion of the writer that electrical dealers as far as possible recommend the installation of the better grade of radio sets. The present excited demand of the public makes it possible to sell any kind of an outfit. These conditions also have attracted many factories who are making inferior and cheap parts. The service rendered by the cheaper sets and improperly installed sets will not be satisfactory in the end.

Where the dealer has not been able to sell one of the better sets and makes the installation of a cheaper one he should continue to follow up this customer with the idea of ultimately selling him the better outfit. It will be the natural desire of all people buying the cheap sets to get better results as time goes on and this can only be obtained by buying a better outfit.

The writer feels that this is a logical and legitimate field for the electrical dealer and that he should get into it at once. The first step is to start to educate himself in this subject. The second step which is equally as important is that he get in touch with a good wholesale distributor and start to work with him. The jobber will then take care of the dealer as far as he is able in supplying goods at the present time. Later, when the present hysterical demand has subsided, he and the dealer will then be in a position to render a service to customers that the mail order houses and the musical concerns will not be able to compete with.

Appended to this report a list of wholesale distributors which will be found on another page of this issue.

First Commercial Station

A wireless telephone broadcasting station is being constructed by the American Telephone and Telegraph Company on the roof of one of its skyscrapers in New York. This station will be the first radio station for telephone broadcasting operated on a commercial basis in New York City.

The station will be equipped with the latest developments of the Bell system, including the use of electrical filters and new methods whereby, as the business grows, several wave lengths can be sent out simultaneously from the same point, so that the receiving stations may listen at will to any one of the several services.

The Bell Company will not provide a program of its own, but will furnish the facilities for broadcasting in response to many requests from newspapers, entertainment agencies, department stores, a great variety of business houses, and others who wish to utilize this means of distribution.

Radio Exhibits at Show

According to the present plans of The New York Electrical and Industrial Exposition to be held in October, the radio department will be one of the most popular features of the show. A whole section of the main floor has been set aside for the exhibits of the various manufacturers, and in addition there will be demonstration stations throughout the building. The show will be held at the Grand Central Palace, October 7th to 14th.

It will be recalled that the present interest in radio, which began with the reporting of the Dempsey-Carpentier fight, gained a decided impetus when a broadcasting station was established at last year's electrical show in New York. The opening musical program was rendered by Miss Anna Case of the Metropolitan Opera Company; on another evening Sophie Tucker and her jazz band provided the entertainment; and the broadcasting of the world series baseball returns was the first time that this sport was reported over the air routes.

Thousands of people visited the station during the show. It was the first time the public had ever been admitted behind the scenes of a wireless station. There was also speed code contests for professional and amateur operators. The programs were conducted under the auspices of the National Amateur Wireless Association with Major J. Andrew White in charge.

B & B Vacuum Tube Sockets

These sockets are made of Beco composition, of rugged design to stand hard use. The contact springs are laminated



phosphor bronze, and they assure good contact and rigid position of the tube. All screws and nuts are polished nickel plate. Price \$1 each.—Betts & Betts Corp., 511 West Forty-Second Street, New York City.

Radio Ground Switches

Two radio ground switches for disconnecting radio sets and grounding the aerial for lightning protection have been placed on the market by the Trumbull Electric Manufacturing Company, Plainville, Connecticut.

It is stated that both of these switches exceed the requirements of the National Electrical code and have the approval



of the Underwriters' Laboratories. The smaller switch, a compact well built device that will stand all ordinary usage, is provided with copper parts made of 60-amp. stock, a base of asbestos wood and a break distance of 5 inches.

The larger switch, a heavier device intended for use in schools, public buildings and with large sets, has copper parts made of 100-amp. stock, a base of asbestos wood and a break distance of 5 inches. Both switches have an attractive appearance.

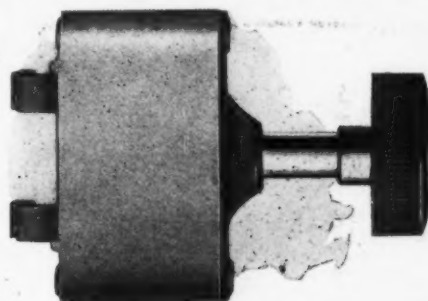
New Filament Control

Signal audibility in receiving tubes depends on just the correct voltage and corresponding current to the filament. The means of varying this current is by means of a rheostat.

A new application of a device that has been in practical operation for some years is the use of the Bradleystat for this purpose. The device is made with graphite disks in a column in a porcelain container. A knob extending from one end compresses these disks or releases them at the will

of the operator. As the disks are compressed the resistance is decreased and more current passes. As the disks are released the resistance increases and the amount of current decreases. The increase and decrease are gradual without any jump which would tend to cause a click in the head pieces.

Since vacuum tubes vary in sensibility owing to the varying degrees of vacuum, it is not practical to synchronize



several tubes except with one rheostat for each. Bradleystats are designed for the control of filament current in receiving or power tubes. They may be used with $\frac{1}{2}$ or 1 ampere detector or amplifier tubes or with transmitting power tubes with ratings up to $2\frac{1}{2}$ amperes. The price is \$1.85 each.

For the regulation of the primary of sending transformers the same principle has been applied in the Radiostat which consists of a column of disks assembled in a steel tube lined with insulating cement. This is suitable for use with power transformers up to $\frac{1}{2}$ kw. capacity. Price with panel mounting \$6.50.—Allen Bradley Co., Milwaukee, Wis.

BROADCASTING A MESSAGE OF VITAL INTEREST TO THE RADIO TRADE

After months of experimental and research work our plant has completed and ready for immediate delivery—

THE EASTERN CLASSIC

A complete receiving unit equipped with two stage amplifier,—contained in a beautifully designed and constructed solid mahogany cabinet, similar in size and appearance to the talking machine.

Its wave length ranges from 150 to 1500 meters, and will receive within a radius of approximately 500 miles.

To Retail for \$125

We have prepared a very attractive pamphlet containing illustrations of the **EASTERN CLASSIC**, as well as a detailed description. This pamphlet also contains a price list covering our line of radio accessories and supplies, which we have in stock for immediate delivery.

The Eastern Radio Manufacturing Company

122-124 Fifth Avenue

New York, N. Y.



H. W. Arlin, Announcer at KDKA, was Taken by Surprise When He Received by Mail from Hespeler, Ontario, a Dictaphone Record Containing a Night's Program He Had Broadcasted. It Seems That One W. E. Weaver, Stationed at This Distant Point in Canada, When Listening to KDKA's Program, Was Struck by the Happy Thought That the Program Might be Taken Down on His Dictaphone. It Worked so Perfectly That He Sent the Record Along to Mr. Arlin

Conducts Meeting By Radio

New York Official Takes Charge of League Luncheon Program Five Miles Away

The mere broadcasting of news and entertainment by radio is now considered a commonplace, but when a person conducts the proceedings of an entire meeting through the ether it is a cause for wonderment.

This was done at the radio luncheon meeting of the New York Electrical League held in the Hotel Astor Wednesday noon, April 26. Promptly at 12:30 Walter Neumuller, president of the League, stationed in the West Street offices of the Western Electric Company five miles away, called the meeting to order and proceeded to put on the radio program.

In addition to the remarks by Mr. Neumuller, Thomas E. Murray, vice president of the New York Edison Company, sang a number of popular songs, and other excellent vocal selections were given by Miss Frances Helen Greenhalgh, mezzo soprano; Miss Lorna Lea, contralto; and Frank Brantley, baritone.

After the last number, Mr. Neumuller announced that he would bring his performers down to the luncheon by automobile and that additional songs would be sung in person—just to prove to any of the diners who perchance might have been a little skeptical, that the voices were the same as they had heard through the atmosphere.

Those who know anything about New

York City know that it is quite a distance from West Street downtown to the Hotel Astor at Forty-fourth Street, and that the traveling conditions by automobile in this crowded section of the big town are hardly what could be called ideal.

It wasn't very long, however, before genial Walter with his group of singers put in an appearance at the hotel. The performers were given a hearty welcome, and when the applause had sub-

sided several of the songs that had been sung over the radio were again sung, and the voices of the singers as they were heard in person were easily discernable as those which had come through the miles of ether a short time before.

From 12:00 to 12:15, the receiving apparatus was tuned to hear WJZ, the Westinghouse broadcasting station at Newark, N. J., and from 12:15 to 12:30 a radio concert was listened to from the broadcasting station of the Western Electric Company in New York City.

At 1:15 John Mills, assistant personnel manager of the Western Electric Company gave a talk on the phenomena of radio, illustrated by moving pictures. Mr. Mills is well known to the deeper students of radio because of his authoritative books on the subject, especially "Radio Communication," which was so widely used as a text book for the signal corps during the war.

This meeting was one of the largest ever held by the League, more than four hundred being present, and marked the first time that ladies were in attendance.

Milwaukee Show

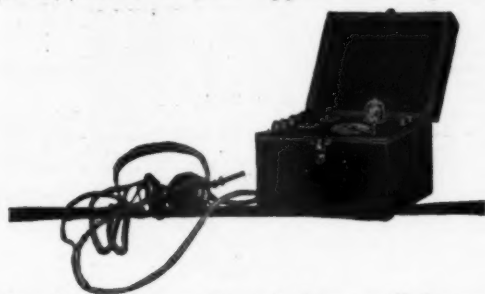
Milwaukee is to have a radio show in the auditorium, June 21-25. Special programs will be broadcasted from the Chicago station of the Westinghouse-Commonwealth Edison Co. during the show.



Here's the Way Joseph M. Zamoiski Company of Baltimore, Displays Radio Apparatus. Various Sets Are Arranged so the Public Can Easily Inspect Complete Units as Well as Unassembled Parts

New Reception Apparatus

Two new products are announced by the Westinghouse Company—the Aeriola, Sr., and the Vocarola. The former is a regenerative receiver and the latter is a reproducing apparatus which serves the purpose of a sound chamber. Through the use of the new apparatus, reception of pro-

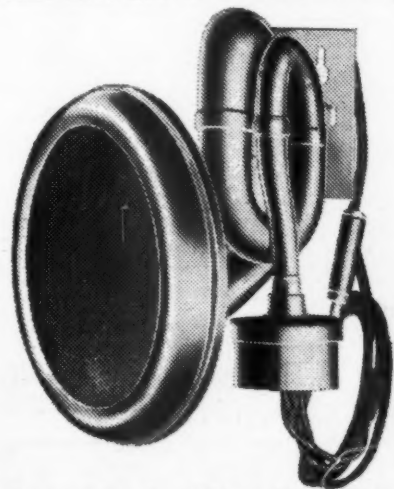


grams broadcasted by radio telephone will be made comparatively easy.

The Aeriola, Sr., is a single circuit tube regenerative receiver. It is contained in a nicely finished wood box with a cover and, as supplied, includes a Brandes head set and special type WD-11 Vacuum Tube.

The oscillating circuit of the receiver of the Aeriola, Sr., is identical with that of the Aeriola, Jr. It consists of a mica condenser of two steps in series with a variometer inductance. The steps of condenser are brought out to two binding posts, the lower capacity being used for wave lengths up to 350 meters and the highest capacity for wave lengths ranging from 300 to 500 meters.

A special tube is furnished with the Aeriola, Sr., the filament of which will operate from a single $1\frac{1}{2}$ volt dry battery. A rheostat takes care of the variation in battery volt-



age. The tube requires but 22.5 volts plate voltage. It is provided with a special base to preclude the possibility of any one inserting it in a socket intended for a tube of higher voltage.

The Vocarola consists of a specially designed metal horn mechanically attached to the mechanism of a single Baldwin telephone receiver. The standard Baldwin mica diaphragm has been replaced by a special metal diaphragm which will stand practically any amount of abuse without damage. The Vocarola will work satisfactorily from a two-stage audio frequency amplifier and, using good amplifying tubes, 150 to 200 volts may be used without damage to the instrument.

This apparatus is distributed exclusively by the Radio Corporation of America.

"Circleteed



is Guaranteed"

Reg. U. S. Pat. Off.

Radio Circle-T Ground and Antenna Switches

"Antenna" Switch

30 Amp.

Slate Base

3 P. D. T. Angle Blades



ANTENNA SWITCH
CAT. No. 8728

Used in receiving and sending wireless messages.

Receive on D. P. Send on 3 P.
On Slate Base 7 in. x 8 in. x $\frac{3}{4}$ in.

List \$3.10.

Ground Switch

S. P. D. T.

$1\frac{1}{4}$ in. and $2\frac{1}{4}$ in. Periphery of Blade 5 in. Break on
Asbestos Wood Base

One end connects aerial to ground and protects against lightning. Other ends connects aerial to instruments. Base cannot absorb moisture.

Made to meet latest Underwriters' requirements.



CAT. No. 8727

$1\frac{1}{4}$ in. Periphery of Blade
5 in. Break

No. 8727

List \$2.65

$1\frac{1}{4}$ in. Periphery of Blade
5 in. Break. 60 amp. stock.
Exceeds Underwriter's specifications which call for $\frac{3}{4}$ in. periphery of blade.



CAT. No. 8729

$2\frac{1}{4}$ in. Periphery of Blade
5 in. Break.

No. 8729

List \$3.15

$2\frac{1}{4}$ in. Periphery of Blade
5 in. Break
For use when especially heavy material is desired.
100 Amp. stock.

TRUMBULL SCHEDULE R DISCOUNTS

Place your orders today

THE TRUMBULLELECTRIC MFG. CO.

PLAINVILLE, CONN.

New York
114 Liberty St.

Boston

Chicago
40 S. Clinton St.

Philadelphia

San Francisco
595 Mission St.



"Circleteed is Guaranteed"



Radio Distributors

The Following is a Partial List by States of Reliable Wholesale Distributing Companies:

ALABAMA		
Matthews Electric Supply Co.		Birmingham
CALIFORNIA		
Leo J. Meyberg Co.	752 S. Angeles St.	Los Angeles
Western Radio Electric Co.	550 S. Flower St.	"
Illinois Electric Co.	261 S. Angeles St.	"
Western Radio Electric Co.	274 12th St.	Oakland
Colin B. Kennedy Co.	Rialto Bldg.	San Francisco
Leo J. Meyberg Co.	428 Market St.	"
Ship Owners Radio Service.	24 California St.	"
COLORADO		
Winner Radio Corporation.	1710 Glenarm Place.	Denver
Hendrie & Belthoff Mfg. Sup. Co.		"
CONNECTICUT		
Whitall Electric Co.	59 W. Main St.	Waterbury
New England Engineering Co.	27 Main St.	"
Electric Supply & Equip. Co.	103 Allyn St.	Hartford
The Hassel & Hoppen Co.		New Haven
DELAWARE		
Garrett Miller & Co.	Fourth & Orange Sts.	Wilmington
DISTRICT OF COLUMBIA		
Doubleday-Hill Electric Co.	715 12th St., N. W.	Washington
White & Boyer.	812 13th St., N. W.	"
National Electric Supply Co.	1328 New York Ave. N.W.	"
FLORIDA		
Pierce Electric Supply Co.		Tampa
Pierce Electric Supply Co.		Jacksonville
GEORGIA		
Carter Electric Co.	21 Haynes St.	Atlanta
Gilliam-Schoen Electric Co.		"
Ship Owners Radio Service, Inc.	230 Broughton St.	Savannah
ILLINOIS		
Central Electric Co.	316 Wells St.	Chicago
Commonwealth Edison Co.	72 W. Adams St.	"
Illinois Electric Co.	312 W. Madison St.	"
Manhattan Elec'l Sup. Co.	114 S. Wells St.	"
Beckley & Ralston Co.	1801 Michigan Ave.	Eureka
Klaus Radio Corporation.		Rock Island
INDIANA		
Alamo Sales Corporation.	519 Peoples Bank Bldg.	Indianapolis
Hatfield Electric Supply Co.	102 S. Meridian St.	"
Indianapolis Electric Sup. Co.	122 S. Meridian St.	"
Varney Electric Supply Co.	121 S. Meridian St.	"
South Bend Electric Co.		South Bend
IOWA		
Waterloo Electric Sup. Co.	303 W. 4th St.	Waterloo
Mid-West Electric Co.	707 Cherry St.	Des Moines
Downing Electric Co.	216 2nd St.	"
Silzer Bros.		"
KANSAS		
United Electric Co.		Wichita
KENTUCKY		
H. C. Tafel Co.	236 N. Jefferson St.	Louisville
Belknap Hardware & Mfg. Co.	127 W. Washington St.	"
LOUISIANA		
Ship Owners Radio Service, Inc.	710 Maison Blanche An'ex	New Orleans
Electric Supply Co.	324 Camp St.	"
Gulf States Electric Co., Inc.		"
MAINE		
Atlantic Radio Co.	Temple St.	Portland
MARYLAND		
Ship Owners Radio Service.	403 Lobe Bldg.	Baltimore
Southern Electric Co.	9 S. Gay St.	"
Joseph M. Zamoiski Co.	19 N. Liberty St.	"
MASSACHUSETTS		
F. W. Hamm Electric Co.	5 Barton Place.	Worcester
Whitall Electric Co.		Springfield
Wetmore Savage Co.	46 Hampden St.	"
Atlantic Radio Co.	727 Boylston St.	Boston
Lewis Electrical Sup. Co.	Federal St.	"
Pettingell & Andrews.		"
F. D. Pitts Co., Inc.	12 Park Square.	"
Ship Owners Radio Service, Inc.		"
Wetmore Savage Co.	75 Pearl St.	"
MICHIGAN		
Detroit Electric Co.	113 E. Jefferson Ave.	Detroit
Commercial Electric Supply Co.	138 Congress St. W.	"
C. J. Litscher Electric Co.		Grand Rapids
MINNESOTA		
St. Paul Electric Co.	145 E. 5th St.	St. Paul
Northwestern Elec. Equip. Co.	174 N. 5th St.	"
Pioneer Electric Co.	137 5th Ave.	"
Peerless Electric Co.	227 S. 5th St.	Minneapolis
Sterling Electric Supply Co.	31 N. 5th St.	"
Kelly-How-Thomson Co.	5th Ave., W.	Duluth
Northwestern Elec. Equip. Co.	174 E. 5th St.	"
MISSOURI		
Saterlee Electric Co.	22 E. 9th St.	Kansas City
B. R. Electric Co.	N.W. 15th & Walnut Sts.	"
Western Radio Co.	6 W. 14th St.	"
Central Tel. & Electric Co.	2018 Locust St.	St. Louis
Manhattan Electric Sup. Co.	1106 Pine St.	"
Wesco Supply Co.	7th & Clark Ave.	"
MONTANA		
Butte Electric Co.		Butte, Mont.
NEBRASKA		
McGraw & Co.	1208 Harney St.	Omaha
Mid-West Electric Co.		"
NEW JERSEY		
National Light & Electric Co.	289 Market St.	Newark
N. J. Wireless Tele. Co.	381 Broad St.	"
Radio Distributing Co.	4 W. Park St.	"
Tri-City Electric Supply Co.	18 Mechanic St.	"
Kirch Light & Electric Co.	306 Market St.	"
Trenton Electric Sup. Co.	207 E. State St.	Trenton
NEW YORK		
Havens Electric Co.	31 Hudson St.	Albany
Federal Tel. & Tele. Co.	1738 Elmwood Ave.	Buffalo
Robertson-Cataract Electric Co.	Mohawk & Niagara St.	"
McCarthy Bros. & Ford.	75-79 W. Mohawk St.	"
Rudolph Schmidt & Co.	51 Main St.	Rochester
Wheeler-Green Elec. Sup. Co.	29 St. Paul St.	"
Rochester Elec. Sup. Co.	240 St. Paul St.	"
James F. Burns Electric Wks.	442 State Street	Schenectady
H. C. Roberts Electric Sup. Co.	321 E. Genesee St.	Syracuse
Mohawk Elec. Sup. Co.		"
Royal Eastern Sup. Co.	35 Livingston St.	Brooklyn
NEW YORK CITY		
Greater City Phonograph Co.	311 6th Ave.	New York City
Pacnet Electric Co.	150 Nassau St.	"
J. H. Bunnell & Co.	32 Park Place.	"
Continental Radio & Elec. Corp.	6 Warren St.	"
Manhattan Elec. & Sup. Co.	17 Park Place.	"
Disbecker & Co.	57 W. 35th St.	"
Ship Owners Radio Service Co.	80 Washington St.	"
Royal Eastern Supply Co.	114 W. 27th St.	"
Sibley-Pitman Electric Corp.	196 6th Ave.	"
Times Appliance Co.	145 W. 45th St.	"
Stanley & Patterson.	West & Hubert Sts.	"
E. B. Latham Co.	550 Pearl St.	"
Landay Bros.	311 6th Ave.	"
Amer. Electro Tech. Appl'ie Co.	235 Fulton St.	"
Howells Cine Equipment Co.	729 7th Ave.	"
Peerless Light Co.	537-9 Broadway	"
NORTH CAROLINA		
Southern Radio Corporation.	905 Rialto Bldg.	Charlotte
OHIO		
Erner Electric Co.	1240 Ontario St.	Cleveland
The Newman-Stern Co.	E. 12th St. at Walnut.	"
Radiovox Co.	5005 Euclid Ave.	"
Republic Electric Co.		"
The Mook Elec. Sup. Co.	Cleveland Ave. & 5th St.	Canton
Precision Equipment Co.	2437 Gilbert Ave.	Cincinnati
Milnor Electric Co.	129 Government Square.	"
Johnson Electric Sup. Co.	331 Main St.	"
F. D. Lawrence Elec. Co.	217 W. 4th St.	"
Post-Glover Electric Co.	308 W. 4th St.	"
Electric Specialty Co.	40 S. Front St.	Columbus
The Hughes-Peters Elec. Co.	Cor. Long & 3rd Sts.	"
Erner & Hopkins Co.	145 N. 3rd St.	"
Wm. Hall Electric Co.		Dayton
The Marshall-Gorken Co.	27 Ontario St.	Toledo
The W. G. Nagel Elec. Co.	28 St. Clair St.	"
The F. Bissell Co.		"
OKLAHOMA		
Southwest General Electric Co.		Oklahoma City
United Electric Co.		"
Oklahoma Radio Co.		"
OREGON		
Ship Owners Radio Service.	622 Worcester Bldg.	Portland
Stubbs Electric Co.	75 6th St.	"
PENNSYLVANIA		
Erie Radio Co.	812 W. 8th St.	Erie
Philadelphia Elec. Co.	132 S. 11th St.	Philadelphia
Phila. Wireless Sales Corp'n.	1533 Pine St.	"
H. C. Roberts Elec. Sup. Co.	1101-5 Race St.	"
Sayre-Level Radio Co.	41 N. 10th St.	"
Ship Owners Radio Service, Inc.	2005 Columbia Ave.	"
Frank H. Stewart Co.	37 N. 7th St.	"
Doubleday-Hill Electric Co.	719 Liberty Ave.	Pittsburgh
Gainaday Electric Co.		"
Iron City Electric Co.		"
Ludwig-Hommel & Co.	530 Fernando St.	"
Radio Electric Co.	3807 5th Ave.	"
Radio Sales & Service Co.	539 Wood St.	"
Robbins Electric Co.	830 Liberty Ave.	"
Union Electric Co.	933 Liberty Ave.	"
United Elec. Stores Co.	106 Electric Ave.	E. Pittsburgh
Bright & Co.	8th & Elm Sts.	Reading
Penn Elec. Engineering Co.	517 Ash St.	Scranton
Scranton Elec. Construction Co.	Connell Bldg.	"
Electric Sup. & Equip. Co.	114 Cliff St.	"
Electric Sup. & Equip. Co.	145 Pearl St.	Reading
RHODE ISLAND		
Whitall Electric Co.	42 Main St.	Westerly
SOUTH CAROLINA		
Mann Elec. Sup. Co., Inc.		Columbia
Perry Mann Electric Co.		"
TENNESSEE		
Electric Supply Co.		Memphis
Richman-Crosby Co.		"
TEXAS		
Texas Radio Sales & Eng. Co.	Slaughter Bldg.	Dallas
Southwest General Elec. Co.		"
Mine & Smelter Supply Co.		"
Tel-Electric Co.		Houston
UTAH		
Inter-Mountain Electric Co.	41 E. 4th St.	Salt Lake City
VIRGINIA		
Ship Owners Radio Service, Inc.	509 Granby St.	Norfolk
Woodhouse Electric Co. Inc.	Bank & William Sts.	"
Tower Binford Elec. & Mfg. Co.		Richmond
WASHINGTON		
Ship Owners Radio Service.	215 Jane St.	Seattle
WEST VIRGINIA		
Radio Service Co.		Charleston
Charleston Electric Supply Co.		"
Superior Supply Co.		Bluefield
Banks Supply Co.		Huntington
WISCONSIN		
Julius Andrae & Sons.	Broadway & Michig'n Sts.	Milwaukee

B & B Variometers

These variometers have a wave length range of from 160 to 600 meters. The wood is kiln dried and impregnated



with orange shellac to prevent absorption of moisture. The rotor connections are by means of a phosphor bronze spring which engages the shaft, thus insuring a positive selfcleaning contact. The finish is mahogany stain. Price \$6.—Betts & Betts Corp., 511 West Forty-Second Street, New York City.

Loud Speaker and Head Set

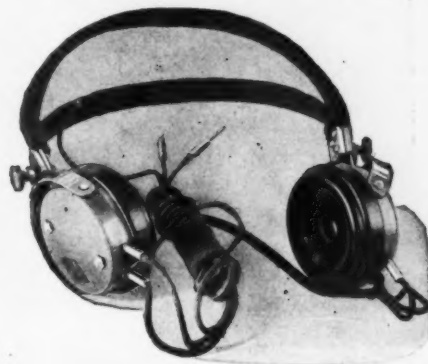
Stanley & Patterson, West and Hubert Streets, New York City, have placed on the market a complete line of radio



equipment among which are their Gold Seal Telephone Head Set and Silvertone Loud Speaker.

The mechanical construction of the head set is designed

with an aim toward the comfort of the operator and the strength and ruggedness of the device. The receiver is carefully wound and the tungsten steel pole pieces are carefully ground, permitting dependable adjustment. The back of the receiver is gold plated and the other metal parts highly nicked. The receiver caps are made of a molded composi-



tion, highly finished. The cords are furnished with a marker through one of them, so that the polarity may be maintained.

The Silvertone loud speaker is constructed to give the greatest possible amplification of sound with perfect modulation, it is claimed.

Every month the Radio Service Supplement will contain live information on proper methods of merchandising radio. Subscribe for it today.

Jobbers and Distributors of RADIO APPARATUS

for immediate shipment of complete sets and all radio parts and supplies.

JAMES F. BURNS ELECTRIC WORKS

442 State Street,

SCHENECTADY,

NEW YORK

EBY BINDING POSTS ARE NOW AMERICA'S STANDARD

Radio Jobbers and Manufacturers
PLACE YOUR FALL ORDERS NOW!



THE H. H. EBY MFG. CO.

WRITE FOR BULLETIN NO. 16—ALSO OUR LATEST TRADE DISCOUNTS

605 Arch St.

PHILADELPHIA



Vacuum Tube Receiving Set with
two stages of amplification.
Immediate delivery

Send for sample.

Address replies: Dept. E.

DEALERS

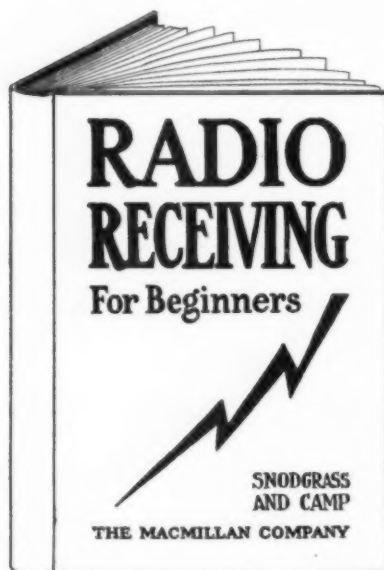
Our Vacuum Tube Receiver is certified by The Evening Mail Institute and is considered by experts to be the greatest value on the market. All materials used in this popular receiver are of the finest. Beautiful cabinet work. Easy of operation.

We have prepared a complete assortment of parts and supplies for your radio department in units of \$250, \$500 and \$1,000. Send for our list.

Wintner Radio Corporation

117 W. 30th Street, New York City

Watkins 0373—0374



Sell This Book to Every Radio Fan

Dealers throughout the country find that everyone interested in installing radio wants understandable information. You can sell every buyer of radio apparatus one of these books.

"Radio Receiving for Beginners" tells in a few simple words how to select, install and operate Radio Receivers. Describes the equipment ranging from the simplest and cheapest to the most efficient. A school boy can easily grasp the essential principles and it contains no unnecessary information.

Sells for \$1.00. Recognized dealers can buy one dozen with a discount of 25%, or 100 with a discount of 33 1/3%.

ORDERS RECEIVED NOW WILL GET PROMPT DELIVERY.

Send orders to NATIONAL ELECTRAGIST

Room 602—15 West 37th Street, New York

Yearly subscriptions to the National Electragist, which includes The Radio Service Supplement as a part of its regular issue, \$2 a year; Radio Service Supplement bound separately, \$1 a year.

RADIO SERVICE SUPPLEMENT TO THE NATIONAL ELECTRAGIST

PUBLISHED ON THE FIRST OF EVERY MONTH

All Communications Should Be Addressed to
NATIONAL ELECTRAGIST RADIO SERVICE SUPPLEMENT
15 West 37th Street, New York City

National Electragist, formerly Electrical Contractor, was established 21 years ago as the official journal of the National Association of Electrical Contractors & Dealers.

Number Two

JULY, 1922

Ten Cents a Copy

Marconi Perfecting Telephony

Signor William Marconi, one of the pioneers in the invention and perfection of wireless communication by telegraph and telegram, paid a recent visit to New York on his floating laboratory, the Elettra. Experiments conducted aboard the yacht indicate that it will soon be possible to send messages to certain definite points as distinguished from broadcasting or sending the messages in all directions. Signor Marconi has sent messages one hundred miles in a definite direction and these messages were not heard except at the receivers aimed at. In time he said messages will be transmitted with the accuracy that marks the transmission of wire messages.

During his visit, Marconi addressed the meeting of the American Institute of Electrical Engineers and visited a number of the broadcasting stations. He is working on the development of speed in telegraphy and has developed a sending speed of 200 words a minute.

China Provides New Field for Radio

To China goes the honor of installing the longest commercial radio telephone circuit in the world. Radio telephone sets have been installed at Peking and Tientsin, covering a gap of ninety miles. These have been connected with the regular telephone lines of the Chinese Government.

Music and speeches, aside from the regular commercial business, have already been broadcasted. Manufacturers here in America report many orders already being received for small crystal sets and it is only a matter of time before the youth of China will be experimenting with and operating radio apparatus.

Armstrong Has Another Radio Invention

Major Edwin H. Armstrong, who has recently been in the radio limelight by reason of winning a patent suit based on the Armstrong circuit, has now perfected an invention which is claimed to amplify ordinary receiving 100,000 times and to do away with the necessity of outside antenna. Major Armstrong demonstrated his invention early in June before the Institute of Radio Engineers in New York.

According to the Major, an outfit equipped with this new

super regenerative circuit is so sensitive that outside aerials are unnecessary. Inside sets can now be manufactured at the same price as those requiring outside antenna. Another practical result of this circuit will be the ability to detect wave lengths under 200 meters with ordinary amateur sets. In the past short wave lengths have not been distinguishable with small sets and with the range under 200 meters available for the broadcasting stations, the cost of broadcasting will be greatly reduced.

Major Armstrong said a short way to describe the new invention would be to say that one vacuum tube is made to do the work formerly done by three. It has been known for several years that the limit of amplification is reached when the negative charge in the tube approaches the positive.

Experiments have shown that it was possible to increase the negative charge temporarily, for about one twenty-thousandth part of a second far above the positive and still keep the average down. It is the possibility of increase which permits the enormous amplification which allows the elimination of two tubes from the circuit.

Holy Bible Broadcasted

Station WJZ, the Radio Corporation of America, controlled by the Westinghouse Company, started in June to broadcast extracts from the Holy Bible daily. Selections are made by P. Whitwell Wilson, author of "The Christ We Forgot" and other religious books and correspondent of the London Daily News.

"Wired Wireless" For Farmers

A new scheme for "wired wireless" is in contemplation by certain radio experts, by means of which millions of farmers now out of the regular broadcasting range will be enabled to "listen in" to market and agricultural reports with small crystal sets, which have a receiving range of 15 to 25 miles.

This scheme takes into consideration the broadcasting of speech by means of the electrical power lines which cover the country with a network of wires. A sending station may be at one end of a wire which penetrates many miles into the "backwoods," and any farmer who is located less than thirty miles or so from this wire, anywhere along the route, can "listen in" with ease, on a low-priced crystal outfit.

Window Displays as an Aid in Selling Radio Equipment

Like Any Other Form of Advertising, the Window Display Should First Seek to Attract Attention Then Induce the Prospect to Come in to Buy

[NOTE—Clean, neat, well arranged windows can sell goods. Dirty, slouchy windows drive trade away. You are paying rent or taxes or interest or something for your window space. Make this space earn a profit for you. Try not to be like the man who never washed the glass in his windows or doors who was one day seized with a fit of cleanliness and did clean them with the disastrous result that one of his customers walked right through the glass thinking the door was open.—The Editor.]

One of the most important helps to selling radio equipment is the intelligent use of the show window. Window trimming is a science and has received careful study, and there are many high salaried men employed in large cities merely to lay out and design attractive windows. It is not possible to employ the services of such men in merchandising radio but it is possible to look at the problem in a common sense way so as to get the greatest possible advantage from the window display space available.

In the first place cleanliness and neatness have a great deal to do with the attractiveness of any display window. The glass should be clean and should be kept clean. Dust and dirt must be entirely absent from not only the articles displayed but from the floor of the window.

Different classes of people respond differently to window displays. Large and exclusive stores on Fifth Avenue in New York find it pays best to have a very simple window with rich draping and a single article displayed. Of course no placarding is used nor are prices or tags visible. This kind of a display appeals to wealthy buyers. On the other hand we have windows in five and ten cent stores crowded to the extreme with all kinds of merchandise, placards and prices galore. This kind of display is also successful for the class of buyers it is aimed at.

In displaying radio, there must be a middle ground and some old established rules must be either broken or modified to suit new conditions. There are radio buyers in both the wealthy and the poorer classes. The appeal must be

made to reach both classes. It would be a poor policy to display a single piece of the more expensive equipment in a window all by itself surrounded only by an artistic background and velvet draperies.

On the other hand the display of hundreds or thousands of small binding posts, condensers, coils or wire, insulators and other miscellaneous equipment hardly fills the bill. There seems to be much that can be done in the matter of displaying radio goods. Here are some suggested layouts for windows:

Window Number 1

Section 1—At the center of the window show two or three radio telephone receiving sets of different sizes and types starting with a simple crystal set, an audion detector set, a regenerative set and a two or three stage amplifier set. As there are new recruits being constantly added to the army of radio fans, it is necessary to go further than merely displaying these sets. Each set should have a neat placard under it stating its use, its approximate range in miles and in wave lengths and its price.

Section 2—Right of the window. This does not need to be separated from the central section but may be as desired. Several types of antenna equipment could be shown with the coil of wire, insulators, lighting arrester, tube, lead in wire and everything necessary. It would be well to label each article and have each group placarded neatly with the price and any information available about the style of set it is supposed to go with. Headpieces could also be displayed with this section, each labeled with the trade name, the resistance in ohms and the price. Some of the more elaborate antenna equipment such as coil antennae, loading coils, etc., could also be shown to advantage.

Section 3—At the left of the window two or three groups of equipment for "making your own" could be shown. These groups could be placarded: "This is the equipment you need to make a crystal receiving set, \$19.75"—or something like that. And so on with two or three other sets showing the actual wire,

binding posts, condensers, tubes or whatever is necessary to the amateur to complete the making of the set.

This seems to be almost the primary kind of a display and there is no limit to the elaborations that can be made. If sufficient windows are available there is no reason why each of these sections cannot be expanded into a window by itself. It would seem to be much more logical to display goods this way than to throw a lot of stock into the window and let it go at that, and yet this is too often done.

Window Number 2

The back of the window is covered with white paper on which is drawn a conventional house with a radio receiving set. An artist could sketch this up attractively and so arrange it that the antenna receiving set, ground, headpieces, etc., are all shown. Those parts which do not show on the outside of the house can be shown through a window or the house can be shown with the walls broken away to show the desired parts. Very small ribbons of different colors are pinned to the different parts and the other ends of the ribbons brought down to the floor of the window to the actual parts. For instance a red ribbon would be tacked to the sketch of the antenna wire and the other end of the ribbon would lead to a coil of real antenna wire. A blue ribbon would be tacked to the receiving set and the other end of the ribbon would lead to the real set in the window. And so on with all the parts such as lightning arrester, ground clamp, porcelain tube for lead in, lead in wire, ground wire, etc. A window such as this can be made very attractive, and if the window is a large one the sketch can form a permanent part of the display, auxiliary displays being changed from time to time. It is also possible to vary the scheme by having a sketch or a large blueprint of a receiver and ribbons from the drawing leading to parts necessary to make the set.

Window Number 3

Where the prospective customers are able to afford the more expensive things in radio, an attractive window can be

worked up by showing several of the more elaborate sets, sets contained in consoles, in table lamps, elaborate loud speakers, and so on. For a class of customers like this, much of the cheaper goods can be eliminated from the window although even the wealthy have sons who like to fuss around making things for themselves. If the store happens to be in a wealthy neighborhood, remember that there are many of the younger generation who are on allowances that make it necessary to look out for the pennies.

The Psychology of Price

Since the beginning of advertising and display the question of whether or not to display the price has been answered both ways. There are those who contend that the price should not be displayed. That you should make the person interested enough in the display to come in and ask the price and then try to sell him the goods. This is good logic, but it does not always work. If the price on something that he was interested in is entirely too high he goes out unsold in spite of the fact that some other article he might want was entirely in keeping with what he wanted to spend.

Price plays a great part in the merchandising of radio goods. As a rule, the beginner wants to start in easy and then after he can creep, he gets up and walks, and buys of the more expensive and elaborate thing that radio has to offer. Tell him in the show window how much the various things are going to cost and he will be the more willing to come in and talk real business. It is not necessary or desirable that the prices be marked in figures a foot high, but there is a commonsense middle ground of marking in which the equipment itself is the principal part of the display, the price being secondary.

Demonstration

Many merchandisers of radio are making extremely valuable use of the loud speaker for attracting people to the show window. This can be very easily arranged by cutting a hole somewhere above the window, or if this is not practical the loud speaker can be set on a table in an open window on the floor above. Antenna wire can be strung on the roof or in any other convenient place, and the receiving set can be located somewhere on the salesroom floor where one of the salesmen can attend to it. There is sufficient broadcasting going on at various hours of the

day that the music, talks and announcements will hold a crowd pretty much all of the time.

With a good window display for people to look at and a good clear reception through the loud speaker there is no reason why a considerable number of buyers will not be drawn into the store.

Radio and the Underwriters

Much undesirable publicity has been given the subject of risk and hazard of fire from the use of wireless outfits in homes, hotels, apartments, hospitals, etc. As a result of this many landlords are prohibiting the use of receiving sets on the ground that they will automatically cancel their insurance.

In general the facts are as follows unless some local regulations are to the contrary:

1—The amendments to the National Electrical Code have not yet been adopted but are temporary only and subject to change before the final adoption in 1923.

2—Local Underwriters' associations have in almost every instance followed the lead of the national association and have adopted temporary regulations.

3—Technically, the insurance could

be refused if a fire resulted from infractions of the temporary code, but as a practical matter no insurance company would do this. Many minor infractions of the code as applied to other electrical devices are constantly made but insurance is not refused on this account.

4—There seems to be nothing in the temporary rules which interfere with radio receiving or transmitting, and the cost of installing the apparatus in accordance with the code is but a trifle more than any other method, so it is just as well to make a good safe job of it and do it according to the code.

5—The chances of lightning striking the antenna are no greater than of lightning striking telephone wires or electric wires, in fact not so much because there is not so much wire exposed to lightning hazard.

6—The code requires not only the following of certain rules but the inspection of the apparatus as well. This is the same as in the case of a house lighting installation.

7—Radio apparatus is not prohibited by the Underwriters, only the installation must follow the rules. The impression has gone around in some places that radio is on the forbidden list like hootch. This is not so.



—Keystone.

Walter J. M. Garvey is Probably Youngest Radio Operator in World. He is Only Four Years Old, Yet Perched up on Table He Can Operate Radio Set as Well as His Dad. As for Sending—Why That's His Meat. Walter is Son of Walter Garvey, Sr., of New York, Who Has Been Enthusiastic Radio Fan for Sometime

The Storage Battery in Radio Work

As Current is Needed to Operate the Vacuum Tube Used in All Larger Sets, a Knowledge of the Generator is Essential

[NOTE—One of the expensive parts of a vacuum tube receiving set is the storage battery. Well taken care of it will last a long time and will give good service. Carelessness may ruin it in a few minutes or a few hours. There are some hints on battery maintenance worth reading on this page. While meant mostly for passing along to the buyer of the battery, there may be some information which will save the electrast some money in taking care of his stock.—The Editor.]

For all types of receiving sets excepting the crystal type a storage battery is necessary for the operation of the vacuum tube. These storage batteries are practically the same as the batteries used in automobiles and many owners of cars will therefore be more or less familiar with the care and operation of them.

The voltage used is 6 to 8 and this is the same voltage as the automobile battery in most cases, although some makes of cars use a 12 volt battery, notably the Dodge. The ampere hour rating, however, is not generally as great as the automobile battery. The lowest rating battery sold for radio work is of 20 ampere hours capacity, but this is, very small and would need frequent recharging. Some of the other ratings are 40, 60, 80, 100, 120 ampere hours. The voltage of the battery is dependent entirely on the number of cells and rates at 2.3 volts per cell. These are the high and low figures, the nominal rating being 2 volts per cell. A three cell battery would therefore have a voltage of 6 although sometimes called 6.8 volts. The ampere hour capacity of the battery on the other hand is directly proportionate to the area of the plate exposed to the solution. The greater the number of plates the greater the capacity. This explains why the smaller batteries have a small capacity and why the batteries with high capacities have a great size and great weight.

How Battery Is Divided

A battery is divided into cells, the division being formed by walls in the hard rubber jar. In each cell are a number of lead plates, the alternate plates being positive and negative. The plates are cast in a grid-like structure and the space between the ribs is filled with a paste. The positive plates are brown or reddish and the negative

plates are gray. The solution or electrolyte is composed of chemically pure sulphuric acid and distilled water mixed in such proportions that the solution has a specific gravity of about 1.275 as compared to water.

As the battery becomes discharged due to current being used, a chemical change takes place between the plates and the electrolyte and the electrolyte becomes lighter until when the battery is nearly discharged the gravity reaches 1.175. A totally discharged battery runs even lower than this. When the battery is charged again a reverse chemical action takes place and the electrolyte gains weight till when fully charged it is between 1.275 and 1.180. A hydrometer test of the electrolyte gives an exact picture of the condition of the battery.

A battery should never be allowed to stand in a discharged or partially discharged condition as this causes what is known as sulphation. Sulphation is the formation of lead sulphate over the plates and it is difficult to get the battery back into condition after this sulphating has been allowed to go on.

Adding Distilled Water

The level of the electrolyte must always be well over the tops of the plates. Low electrolyte allows the tops of the plates to dry out and sulphate. Nothing must ever be added to the battery except pure distilled water. No acid is ever added because none evaporates. Only the water evaporates. If the gravity will not come up, there is something wrong with the battery and it should be taken to an expert battery man for attention.

Batteries can only be charged from direct current. If alternating current is available, it can be used in connection with a rectifier which allows only waves of current in one direction to enter the battery. The charging rate varies with the make and capacity of the battery, how far it is discharged and whether there is sulphate on the plates. A totally discharged battery can be charged at a fairly high rate but as the battery charges the rate must be reduced. A sulphated battery can only be gotten into good shape by charging for a long period of time at a very low rate. The deciding factor in

charging is the temperature. Charging has a tendency to heat the battery and the temperature should never exceed 105 degree. Any rate that will not cause a greater heat than this will be all right to use. Most batteries have the normal charging rate stamped on the nameplate.

Direct Current Charging

Where direct current is available the charging can be done either through a rheostat which introduces sufficient resistance in the circuit to reduce the rate or by the use of a lamp bank resistance. The greater the number of lamps used the greater the current passing to the battery.

The electrolyte is very destructive to fabrics, wood, metal, and the hands, and will eat holes through anything that it gets on. It is therefore advisable to have a heavy rubber or lead protector for the battery to stand on. Acid will not attack rubber at all and will attack lead only very slightly. To neutralize the action of acid which becomes spilled on anything, use strong ammonia freely.

To prevent the corrosion of the terminals on the storage battery, smear them with vaseline after the wire connections have been made.

Be careful not to allow bare wires from the storage battery to cross as the battery will be short circuited. There is sufficient power in the battery to heat a good sized wire white hot and even to melt it, so all wires should be insulated and there should preferably be fuses of the automobile type in the circuit to prevent any accidents.

In testing a storage battery with meters, use a volt meter across the terminals. The high voltage should be 2.2 volts per cell measured while the battery is being charged. When the battery is nearly discharged the voltage will measure as low as 1.75 volts per cell. Never connect an ammeter across the terminals of a storage battery or you will see the instrument ruined and perhaps melted up in your hand. The current is sufficiently heavy to burn any ammeter out because most batteries will give a momentary discharge of 400 amperes. For instance, the use of an automobile starter to start the engine draws at the rate of 150 to 200 amperes for a

DUDLEY RADIO PRODUCTS

"QUALITY AND DEPENDABILITY GUARANTEED"

The Time Has Arrived

The toy period of radiophony is passed and the buying public demands quality and dependability in its radio equipment. Unlike other mushroom businesses, radio apparatus is more or less a public property. By this we mean that practically all the patents have expired, giving those who know very little, if anything, about radiophony, an opportunity to place on the market, radio products that are made as cheap as possible and sold at the highest prices, with no thought of giving the recipient a square deal. There are in the United States at the present time 17,500 firms who are manufacturing one or more radio products. It is safe to say that out of this number, only a small percentage have had radio experience.

The engineering department of the Dudley-Vought Corporation is under the direction of our Vice President, E. P. Allard, formerly with the General Electric Company; Westinghouse Electric & Manufacturing Company; and the Q. M. C., U. S. Army. The executive department is being directed by W. R. Dudley, formerly of the 212th Field Signal Battalion of the U. S. Army.

It is the policy of the Dudley-Vought Corporation to market

DUDLEY RADIO PRODUCTS

through those who should rightfully distribute radio products. We believe that the qualified distributor is the electragist, not the confectionery store, the book store or the baker and the like who are now handling radio products.

Remember also, that the Dudley-Vought Corporation is standing behind you at all times and no sale is complete until your customer is satisfied in every way. Our proposition to you is exclusive and equitable. And we will be pleased to furnish particulars, upon application from you. Either write on your letterhead or enclose your business card, as this information is for select electragists.

DUDLEY-VOUGHT CORPORATION

DEPARTMENT R. E.

17-19-21-23 So. 52nd Street,
PHILADELPHIA, PA.

DUDLEY RADIO PRODUCTS

"QUALITY AND DEPENDABILITY GUARANTEED"

few seconds. An ammeter is always connected in series with the load which in the case of radio work is the vacuum tube. The ammeter is then used to measure the current passing through the tube and this current is varied by a rheostat.

Never bring a naked flame close to the vent of a battery especially when it is charging. Hydrogen gas, highly explosive, is generated and given off and will ignite from a flame.

Radio Supply Jobbers

Additional Names to List Published Last Month

As a result of the publishing of the list of supply jobbers in the June issue a number of firms not included have written in asking why, since they are old established and therefore reliable companies, their names were omitted. Our answer is that there was no reason for such omissions. The list published was compiled by the Merchandising & Industrial Development Committee of the National Association within the quickest possible time in order that the large number of members who desired to merchandise radio might have to hand at least a partial list of supply jobbers with whom they could do business with assurance of their reliability.

We shall be glad to add additional names of reliable supply jobbing concerns to this list as such names are received. The following excerpts from letters are published in justice to those whose names did not appear in the original list last month.

Editor NATIONAL ELECTRAGIST:

In the Radio Service Supplement of your issue of June you publish a list of radio distributors. We note that on the Colorado list you fail to mention the name of this company. Possibly the list is an advertisement although it is not so marked. If not, and if you should repeat the publication of the list, we would appreciate your including our name therein.

The Mine & Smelter Supply Co.,
Denver, Colo.

H. G. Overbeck, Asst. Mgr.

Editor NATIONAL ELECTRAGIST:

In your June issue I note that you have favored the contractor-dealers with a list of jobbers on radio supplies and equipment. We are really sorry to note that you have overlooked the Holt Electric Company on this list.

For your information, we are distributors in the state of Florida for the A. H. Grebe Company and the Clapp-Eastham Company as well as recognized electrical jobbers in a general line of materials and supplies.

If your list is to include jobbers of the Radio Corporation of America only, alright, but if it is to be a list for the purpose of advising dealers where they can obtain radio supplies and equipment we

would certainly appreciate seeing our name on the list.

Holt Electric Co.,
Jacksonville, Fla.
R. L. Cornell, Gen'l Mgr.

Editor NATIONAL ELECTRAGIST:

The June copy of the National Electragerist is before me. I am very glad indeed to note that you have started a special supplement for radio, and needless to say wish you every success for this new venture.

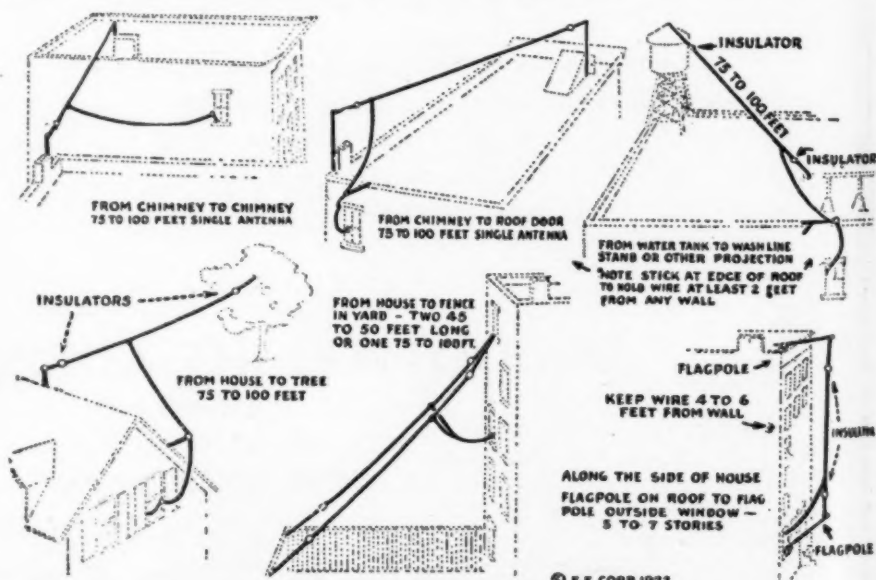
However, I am wondering just why the name of this company is not included in the list of "reliable wholesale distributing companies" which is shown in the radio supplement. This company was in business many years before any of the others listed, even were thought of, and furthermore, this company had a department selling wireless supplies as long as ten years ago, which department was abandoned after governmental restrictions, effective early in 1917, prohibited the sale of material that could be used for wireless communication.

Approximately a year and a half ago we again employed a wireless man, and with the increase in this line of business, we naturally have enlarged the department so that today we have a very representative line of materials always in stock and do a large volume of wholesale business in wireless materials. Due to the fact that we are not affiliated with either the Westinghouse or the General Electric companies we have so far been unable to secure distributorship for the Radio Corporation of America, but that does not mean that we are not distributing wireless material in a wholesale way. Furthermore there is hardly anyone who can justly accuse this company of not being "reliable," and therefore we are rather wondering why our name was not included.

Newark Electrical Supply Co.,
Newark, N. J.
O. Fred Rost, Gen'l Mgr.

Radio Exhibit

A working radio exhibit is planned in connection with the industrial and electrical exposition of New York which



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Showing Various Aerials. All Arrangements Are Practically Equally Effective Provided Provision is Made for Varying Weather Conditions Which Affect Physical Layout

will be held in this city at the Grand Central Palace from October 7 to October 14. It is expected that the ever growing popularity of wireless will help draw additional crowds to the show this year.

Trees as Antenna Supports

In country and suburban districts many owners of radio sets are using trees as supports for the outer end of the antenna. As a result there is a considerable amount of trouble from broken wires due to the trees swaying with the wind. This trouble is a great deal more serious in the summer time than in the winter because the increased resistance caused by the leaves on the trees gives the trees more sway. Where it is possible to anchor the outer end of the antenna to some fixed object like a house, barn, or pole, there will be much less breakage of antenna but where it is necessary or more desirable from the point of view of position or height to use a tree, it is well to advise customers to allow plenty of slack in the wire to allow for sway. Trees with small trunks sometimes have a sway in the upper part of 10 or 15 feet while even great trees with trunks a couple of feet in diameter have a sway of 5 to 10 feet in the upper part.

Another caution that will assist in advising correct installation is to have the insulated section clear of the leaves of the tree. Allowance of several feet should be made on account of the branches blowing and for growth of the tree during the course of the summer.

"Circleteed is  Guaranteed"

SWITCHES FOR RADIO WORK

Battery Switches

PORCELAIN BASE

Cat. No.	STYLE	Carton	Std. Pkg.	Gross Wt. S.P.	Price Each	Size Base Wide Long
707	S. P. S. T.	10	150	48 lbs.	\$0.20	1 1/2 x 3 1/2
708	S. P. D. T.	5	100	45 "	.32	1 1/2 x 3 1/2
709	D. P. S. T.	10	100	50 "	.35	2 x 2 1/2
710	D. P. D. T.	5	50	46 "	.50	2 1/2 x 3 1/2
711	3 P. S. T.	5	50	45 "	.56	3 1/4 x 2 1/2
712	3 P. D. T.	5	50	67 "	.90	3 1/4 x 3 1/2



CAT. NO. 707
S. P. S. T.



CAT. NO. 708
S. P. D. T.



CAT. NO. 709
D. P. S. T.



CAT. NO. 710
D. P. D. T.

FIBRE BASE

25 AMP. WITH HARD RUBBER PISTOL GRIP HANDLE

Cat. No.	STYLE	Carton	Std. Pkg.	Gross Wt. St. Pkg.	Price Each
7	S. P. S. T.	20	200	36 lbs.	\$0.22
8	S. P. D. T.	10	100	30 "	.34
9	D. P. S. T.	10	100	41 "	.42
10	D. P. D. T.	10	50	36 "	.80
40	3 P. S. T.	10	50	35 "	.75
41	3 P. D. T.	10	25	20 "	1.25
42	4 P. S. T.	10	25	20 "	1.10
43	4 P. D. T.	10	10	10 "	1.75

25 AMP. Handle with Black Enamel Tip

Cat. No.	STYLE	Carton	Std. Pkg.	Gross Wt. Std. P.	Price Each
11	S. P. S. T.	20	200	34 lbs.	\$0.20
13	S. P. D. T.	10	100	29 "	.32

Discounts—TRUMBULL SCHEDULE B



CAT. NO. 7
S. P. S. T.



CAT. NO. 8
S. P. D. T.

GROUND SWITCHES



CAT. No. 8747

PORCELAIN BASE

No. 8747 List \$2.00

On porcelain base.



CAT. No. 8727

1 1/4 in. Periphery of Blade
5 in. Break

ASBESTOS WOOD BASE

No. 8727 List \$2.65

Nos. 8747 and 8727 have 1 1/4 in. periphery of blade, 5 in. Break Exceeding Underwriter's requirements of 3/4 in. periphery.



CAT. No. 8729

2 1/4 in. Periphery of Blade
5 in. Break.

No. 8729 List \$3.15

2 1/4 in. Periphery of Blade
5 in. Break

For use when especially heavy material is desired.

100 Amp. stock.

ANTENNA SWITCH

30 Amp. Slate Base

3 P. D. T. Angle Blades

Used in receiving and sending wireless messages.

Receive on D. P. Send on 3 P.
On Slate Base 7 in. x 8 in. x 3/4 in.

List \$3.10.



CAT. No. 8728
ANTENNA SWITCH

ALL DISCOUNTS—TRUMBULL SCHEDULE R



The Trumbull Electric Mfg. Co.

PLAINVILLE, CONN.

San Francisco

New York

Philadelphia

Chicago



First Talk to a Convention by Radio

William L. Goodwin, Assistant to President, Society for Electrical Development,
Speaks in Newark, N. J., to State Meeting of Electragists at Oneonta, N. Y.

In using this wonderful method to speak to my invisible audience this morning, I am thrilled with pride in the thought that both you and I are so intimately connected with the great industry whose past activities, represented in the person of scientists, inventors, chemists, engineers, and also great industrial and financial leaders, have through years in face of all manner of discouragement and opposition, slowly but surely upreared the basic structure from which this present wonderful instrumentality we are using has emanated.

No greater triumph over the mysteries of nature has taken place in the memory of mankind, and in view of its present accomplishments he would be a brave man indeed who would attempt to define the infinite wonders that may yet become the willing servants of humanity.

I desire also to express my gratification that I am able to speak to you in my official capacity as assistant to the President of the Society for Electrical Development.

This organization, as you are all aware, has for several years past as a cooperative organization representing all branches of the industry, been engaged in the constructive task of educating the public to the advantages and economies made possible by using to the full electrical service and appliances, both in industry and the home. As a result of this intensive educational work I believe the public today is more readily responsive to the idea of Do It Electrically than it would have been by any other single process.

In this connection I desire to express my thanks to the newspaper press of the country for the measure of responsiveness and aid they have given to the Society for Electrical Development.

Review New World

When we look back over a brief span of years and attempt to visualize what electricity and its applications have done for the improvement of living and working conditions alone, we practically review a new world, as compared with any preceding era of which we have positive knowledge. Yet this span is measured in the short lives of many men and women still with us.

It is but 78 years since the words "what hath God wrought" formed the first telegraphic message that flashed over the wires by electric current from Washington to Baltimore.

It is but 46 years since the first long conversation was carried on over telephone lines between Boston and Cambridge, and but 40 years ago since the first commercially practical light and power station was opened for public service.

As a result of this latter act, the central station today is a large and ever growing factor of increasing importance in the progress and development of our cities and states and electrical power, and its development and applications have become national issues.

When we realize that the electric light and power companies alone in the United States represent a total investment of over five billions of dollars with a gross income of more than nine million dollars, and furnish employment for approximately half a million people, we get a slight idea of their importance.

When we add to this the street railway industry, with its six billions of investment, operating 44,000 miles of track and employing over 300,000 people, we begin to visualize an industry whose importance is not easily expressed in dollars and cents. And it is true, as has been recently stated by a prominent writer, that no agency which has ever come to the aid of man has lifted a greater burden from human shoulders than has electricity. It would take the combined strength of twenty million horses to furnish the power now supplied by electrical central stations in the United States.

Public Is Appreciative

Through the wise leadership of the far seeing men now active in this branch of our industry and the application of modern methods, the public is beginning to appreciate the service they are receiving from the public utility companies.

It is therefore a matter of pride for us to be able to say that over 1,500,000 private citizens have all or a part of their savings invested in the securities of electric light and power companies.

Apart from this every home owner

is appreciating the fact that electrically wired home is virtually a power plant as it has the facilities for operating all kinds of domestic labor saving appliances and devices, which are helping to solve the labor question in the home, and bringing our women folk the needed opportunities for rest and recreation previously denied them.

It is this latter phase of our industry that is of immediate interest to you gentlemen as contractors and contractor-dealers.

The proper and efficient installations of adequate wiring systems in every home in the country is of prime importance.

With the constant development of new forms of application of electricity, and the additions and improvement in appliances combined with their many varied uses, the necessity for adequate wiring systems is constantly increasing, and every electrical contractor should be constantly on the alert to keep not only himself but his customers and the public generally posted as to the great economic advantage to be gained by a full and generous use of electrical methods and mediums.

Electragists Have Fertile Field

For the electragist the field is ever expanding and growing, and the public is fast getting to the point where it demands and must have the best in electrical equipment and appliances, plus intelligent and economic service for its immediate needs and desires.

The product of no art or industry, with the possible exception of writing and printing, has ever become so intimate a part of the daily lives of men and women as that one of which you gentlemen are a representative branch.

This entails a large measure of personal and collective responsibility, and I urge you at this time to exert every possible thought and influence to devise and improve every legitimate means and method to discharge your duties and responsibilities in such a manner as may reflect a renewed and larger measure of success from your efforts and an ever increasing growth of confidence from the public you seek to serve.

In closing I desire to thank the officials and representatives of the West-

DUBILIER RADIO SPECIALTIES

The Dubilier Condenser and Radio Corporation, known all over the world for its condensers, manufactures the following specialties, widely used because they improve the reception of broadcasted radio entertainment:



THE DUBILIER DUCON DOES AWAY WITH ANTENNAE

The Dubilier Ducon makes it possible to pick up radio concerts from any electric light wire. Simply screw the Ducon in a lamp-socket, connect it with any standard receiving set, and you hear perfectly. The results are amazing. The Dubilier Ducon makes it possible to sell sets to apartment-house dwellers who are forbidden by landlord rules from erecting antennae. Price (retail), \$1.50

REDUCE TUBE NOISES WITH DUBILIER MICADONS

Because the capacity of ordinary receiving condensers fluctuates often millions of times per second, the tubes howl and whistle.

Dubilier receiving condensers, sold under the trade name "MICADONS," are pressed together, so that they cannot dilate and contract as they are charged and discharged. Hence their capacity is permanent. Moreover, they are mica condensers.

MICADON TYPE 601

Made with eyelet terminals, so that they can be readily connected in parallel or series to build up any desired capacity.

Retail price for capacities .0001, .00025 and .0005 mfd. 35 cents each.

Retail price for capacities .001, .002, .0025 mfd. 40 cents each.



MICADON TYPE 601-C

Similar to Micadon Type 601 but made with three eyelet terminals, which permit the selection of any one of three capacities. The standard capacities are .0002 and .0006 mfd., but the type can be made in other capacities. Retail price 60 cents each.



MICADON TYPE 600

A perfect mica condenser encased in bakelite and provided with clamps and made with and without grid-leak mounting.

Retail price in capacities from .0001 to .002 mfd. 75 cents each

Retail price in capacities from .0025 to .005 mfd., \$1.00 each



Liberal Discounts to the Trade
Send for Descriptive Bulletin

Dubilier Condenser and Radio Corporation

DEPARTMENT NE

217-219 Centre Street, New York

BRANCH OFFICES:

Munsey Building, Washington, D. C.

LICENSEES

CANADA: Canadian General Electric Company.

ENGLAND: Dubilier Condenser Company, Ltd., London.

GERMANY AND SOUTH AMERICA: Telefunken Co., Berlin.

FRANCE: C. Capart, Paris.

The ONE unbiased authority on RADIO

NOW there is ONE authentic source of information on every phase of radio. Lefax Radio Handbook, just out, knows all—tells *how*—and never grows old. You will want one copy yourself, an invaluable aid to your radio department. You will find a steady demand and new profits from the sale of other handbooks to your radio customers.

Everybody is anxious for a good information service on radio. Dr. J. H. Dellinger, Chief of the Radio Laboratory of the U. S. Bureau of Standards and L. E. Whittemore, Alternate Chief, with the unlimited resources of the Government at their command, have produced the

Lefax

LOOSE-LEAF FACTS

RADIO HANDBOOK

to supply this need. Lefax covers every phase of Modern Radio; aerial construction, lightning protection, exact function of each piece of apparatus, actual practice of all types of sets—technically correct in every-day language.

Lefax never grows old. New events and developments will be covered as fast as they happen on new pages sent free to every owner up to July 1st, 1923.

Lefax ads in fifteen national publications will have a total circulation of thirteen million. Besides this, we supply you free with a handsome window card and counter display that will take little room and create big sales. Remember, also, every Lefax sale creates a customer for high priced apparatus.

Find out about the Lefax special introductory offer at once. The coupon below is for your convenience.

LEFAX, INC.

Dept. G Ninth and Sansom Sts., Philadelphia

Lefax, Inc., Dept. G
Ninth and Sansom Streets
Philadelphia, Pa.

Send me by return mail your Broad-side for radio dealers, outlining in detail the sales possibilities for Lefax Radio Handbooks, your thirteen million advertising campaign and the profits I can make.

Name.....

Address.....

City.....State.....

Send this

inghouse and Western Electric Companies, as also those of the Radio Corporation, through whose responsive co-operation and action I am afforded this opportunity of talking to this convention.

I trust that this spirit of coöperation and action has permeated the entire sessions of the convention and that these meetings will be recorded as decided steps taken in the direction of larger, better, and more effective understanding on the part of all participating toward that true spirit of coöperative effort that can only mean assured advancement and success both personal and commercial for all within reach of my voice.

Thank you. Good bye.

N. E. L. A. Considers Radio

Report Shows Art Has Reached Eminently Practical and Dependable Stage

Detection of approaching thunderstorms in time to make necessary adjustments in operation of electric service is a valuable practical use of the radio, according to the report of the electrical apparatus committee of the National Electric Light Association presented at the convention in Atlantic

City recently. The radio also serves to detect defects in electrical apparatus and equipment more efficiently than any other agency, the report says.

The report continues: The entire radio art has reached an eminently practical and dependable stage. Transoceanic telegraphy on a basis comparable to that of the cables probably represents both the greatest investment and the most spectacular operation. The marine use of radio, including not only ship communication but also position finding for vessels at sea, are also of tremendous importance. In Europe wireless telegraphy is coming into extensive use for intercity communication. Some attempts in this direction have also been made in the United States.

The broadcasting of news and weather dispatches, musical and other entertainments, speeches, and church services by radio telephone is providing a valuable service to hundreds of thousands of listeners. Radio has also proved its importance as a wire line auxiliary in the railroad field. Train dispatching by radio has been accomplished many times, and some far seeing railroads have installed radio equipment as part of their permanent plant.

Many electrical companies are making use of the radio. Communication between plants and substations, transmission of instructions to repair gangs along the lines, and the possibility of the remote control of switches are given as some of the immediate and important applications. Installation of receiving outlets on automobiles and motorcycles is made where portability is desired.

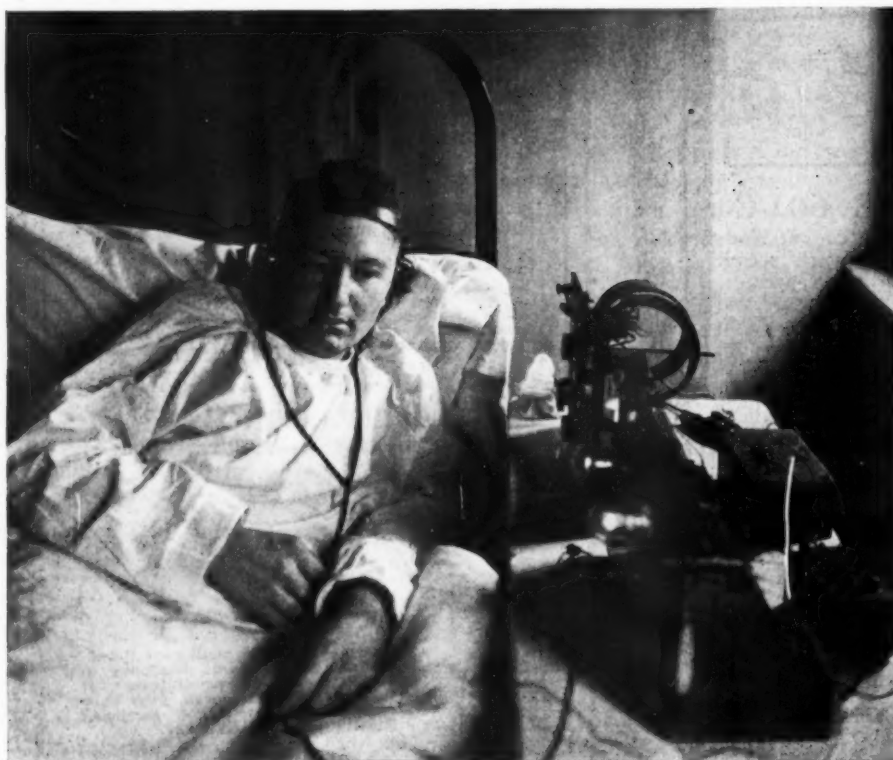
A wide field for remote operation of substations and switches is opened by the application of what is known as the wired wireless.

Not the least interesting outgrowth of radiant wave telegraphy is the application of its principles to communication along wires. It has been found entirely feasible to associate a radio transmitter with a wire system running from one point to another (even though the wire were used for power transmission) and to send along the wire a series of radio frequency current waves which may be detected at the distant end by means of a simple radio receiver. Such wired wireless, as the arrangement is frequently called, permits considerable economy in operation. It is claimed for this system that fairly clear telephone communication is possible even with lightning storms over the main line and with all but one of the power wires cut or grounded.

Within the past year, and even in the past few months, a number of steps which mark notable progress in radio have been made. Both transmitters and receivers have been improved in effectiveness, economy, reliability, and convenience of operation. In radio telephony substantial improvements have been made in clarity of speech transmission, so that now the radio gives a definiteness of articulation far surpassing the wire telephone. Loud speaking apparatus has been developed to the point where purity of reproduction is not sacrificed to gain sufficient intensity. It is now possible to secure reliable radio service of a character never before even approximated.

New Publication

"Sparks" is the title of a weekly publication gotten out by the Radio Shack, 419 West Forty Second Street, New York City, which contains the weekly programs of WJZ (Newark), KDKA (Pittsburgh), WGI (Medford Hillside), KYW (Chicago), and WOR (Newark). Copies are sent free to those desiring them.



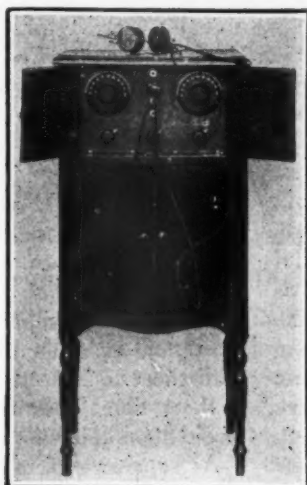
—Keystone.

Radio Epidemic Which Has Swept Country in Wild Fire Fashion Infesting Homes, Clubs and Lodges Alike, Now Finds Its Way into Hospitals and is Carrying Musical Strains to Patients Undergoing Surgical Operations. Here is Stanley B. Igoe of Massillon, Ohio, Manager of Local Electric Company, Who Was First in Ohio to be Operated on to Tune of Radio Music

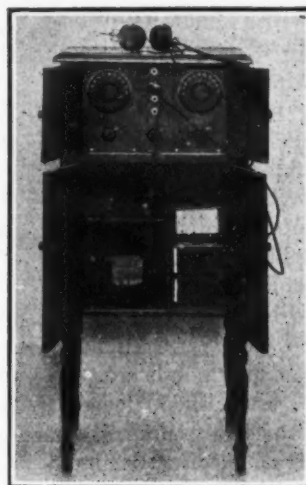
Beauty Efficiency Compactness

all are combined in

THE EASTERN CLASSIC



Eastern
Detector
Amplifier
3 tubes



Manufactured by

The Eastern Radio Manufacturing Company
122-124 Fifth Avenue New York, N. Y.

RADIO 40% PROFITS

Dealer's Opportunity of the Hour—

Radio Supplies Sell Like Hot Cakes

The radio craze is on. Millions of receiving sets are being built by amateurs. Almost every schoolboy is constructing his own radio receiving apparatus. The real profits are being made in supplying the amateur with his needed parts such as detectors, condensers, wire, etc.

SELL RADIO PARTS AND SUPPLIES

Technical knowledge is not necessary. Anybody can sell them. Most buyers point out exactly what they wish. You merely hand it to them. Sells on sight.

COMPLETE DEALER ASSORTMENTS—Includes window and counter display cards to which the smaller items are tacked, named and priced. Consists of standardized staple parts needed by every amateur, and interchangeable with all leading makes. Every item is a live seller such as tuning coils, binding posts, detectors, condensers, and dozen of other necessary items in an assortment of sizes to suit every buyer.

LIST PRICE, COMPLETE ASSORTMENT.....\$100.00

Based on uniform standard list prices adopted nationally by all reliable manufacturers.

DEALER'S DISCOUNT 40%\$ 40.00

NET COST TO DEALER.....\$ 60.00

NOTE:—Other assortments list at \$150.00 and up and take the same 40% discount as above. We recommend the above. REPEAT ORDERS OR FILL INS TAKE THE SAME 40% DISCOUNT.

Terms:—15% cash with order, balance by express C. O. D.

Mail your order now. Be one of the first to cash in on radio's popularity. IMMEDIATE DELIVERY.

SALESMEN—WRITE FOR PROPOSITION.

CORONA ELECTRIC CORP.

265 Canal Street

New York City, N. Y.

Radio in Los Angeles

Electragists as Well as the Big Department Stores
Are Now Featuring Their Wireless Departments

It is a trite expression to say that radio is "sweeping over the country like wild fire," yet there is scarcely any other that fits the case so well. The western stores were perhaps a little behind their eastern colleagues in stocking up with equipment, and they are paying for it by being unable to take care of the avalanche of trade that now besieges them. All of the big department stores, as well as the regular electric merchandising establishments, are now carrying equipment—as much as they can get—but Bullock's is the only one that seems to be ready to meet all needs. The radio section, which occupies a horseshoe shaped booth near the elevators, was established several months ago, with two salesmen in charge, and report an excellent business ever since its inception.

The Broadway Department Store recently installed a radio section with a young and enthusiastic radio operator in charge. H. C. Kiehl, assistant manager of the department, said that the greatest trouble they were having was the securing of equipment, the manufacturers taking orders only on the plan of delivering from 5 per cent to 10 per cent at a time. The radio salesman and the demonstrator said that they handled both the crystal and audion types, and that he found the most popular of the former ran about \$25, while the audions ranged from \$50 to \$65. This applied

only to beginners. After a time the devotees wanted to extend their range of hearing and almost invariably purchased more expensive sets.

"Everybody from six to sixty is taking up radio," he said. "I have calls for apparatus from boys as young as seven or eight, though the average age at which the youngsters begin to take an interest is about twelve. Most boys prefer to build their own sets. I built all of mine, and took more pleasure in the construction than in the operation after it was completed. The material for a crystal set can be secured for as low as \$7, and the audion type for \$20.

Boys do not have much spending money and can rarely go above these amounts. The boys of high school age want a better type and frequently buy a complete set, while the men who have taken up the fad are practically unanimous in purchasing the sets, having no time to spare in constructing one. They all want the best and are willing to pay the price. The high schools of both Los Angeles and Pasadena are giving free instruction in radio construction and operation in their night schools and this has given a wonderful impetus to the sales."

Mr. Kiehl said that they gave radio concerts every day, commencing at 11:30, and could pick up sound waves 3,000 miles away. They advertise conservatively, feeling little need for publicity, as they can scarcely supply the

demands that come in the ordinary day's business.

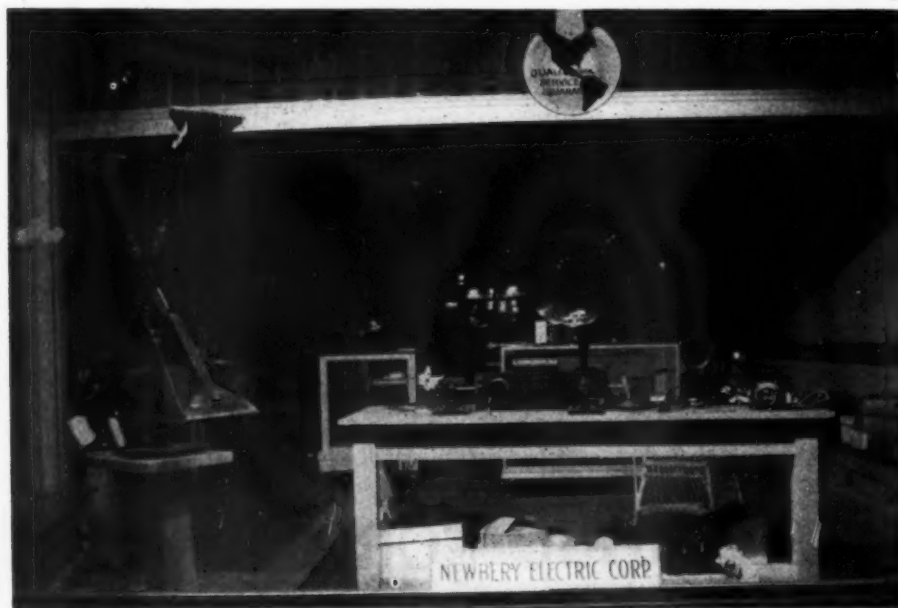
Call It a Staple

Practically the same condition prevails at Robinson's. A good radio section has been established in charge of an experienced radio enthusiast. The sets carried by this firm start at \$15, and a complete workable set can be had for \$25. The department is very popular with the boys as they have a listening in table, with headpieces, so that a group of boys can listen at the same time. E. S. Beebe, manager of the department, said that this plan was productive of a number of sales. Boys interested in radio bring their friends with them to hear the concerts, and in a short time these friends become interested on their own account.

As soon as sufficient stock can be accumulated they plan a window display, "but just now," said Mr. Beebe, "it is so hard to secure delivery that we do not feel inclined to take stock from our section to make the display without having a reserve stock from which to sell." Both Mr. Beebe and the radio salesmen are firmly of the opinion that radio is not a fad but that it will take its place among the staple lines. One of their chief reasons for so believing is because additions to equipment are being perfected every little while, and before the boy or man—and there are many of the latter—can lose interest in the set he possesses, there is some new device for him to try that will increase the efficiency of his radio outfit.

Hamburger's have a fine radio station on the roof of their big store and here their salesroom is located. Divorced from every other line, the department is thronged every day with real radio enthusiasts, who appreciate the undivided attention to their wants. They were probably the first firm in the city to broadcast concerts, in this way getting their line before amateurs all over the west.

They also are building up for themselves a large clientele of customers among the rising generation by means of their wireless telephone and telegraph school. All classes are free and the course outlined aims to fit any student for the federal examination for license as first class amateur wireless operator. Boys desiring to attend must register in the boys' clothing depart-



Everybody Was Pleased With Newberry Electric's Comprehensive Display



Electric Appliance Shop's Distinct Appeal to Own Your Own Set

ment, and their parents or guardians must come also and sign a permit allowing the youngster to attend classes. After registering, he receives a lesson ticket which he must have punched each time in the boy's department, and the manager then issues a pass permitting him to enter the wireless room. The class room adjacent to the sending and receiving room is equipped to accommodate forty boys. At least one class and sometimes two are held every day in the week, upward of 300 boys already having registered. A special class

for out of door children is held every Saturday afternoon, some of the pupils coming as far as fifty miles to attend.

Another plan for interesting the youth of the city is by equipping a Ford with wireless antennae. The car, with its overhead wire fixtures, large horn, receiving station, etc., always arouses interest, but when from the horn comes the statement that the Hamburger roof concert is about to begin the curiosity is intensified. In order to make the plan most effective the car drives up in front of the different high

schools just as school is dismissed, and thus is brought to the attention of all lads.

Barker Bros. have a well stocked radio section, being located on the main floor in the rear where those interested in radio can talk over their plans free from interruptions by patrons from other lines. The young man in charge said they made practically no appeal to boys, the vast majority of their patrons being men, who wanted the very best apparatus obtainable. While they carry sets as low as \$25 he said that the majority of their buyers bought sets ranging from \$235 to \$250. They advertise their radio line quite freely in the newspapers and recently had a display of sets and parts in one of their show windows. Cards explained each piece of apparatus and gave the price, and the simple appearing display had a greater crowd in front of it than if a collection of Paris gowns had been exhibited. This firm has just opened a broadcasting station and plan to give three concerts daily.

Electragists Are Active

The electric stores have not been slow to cash in on the sudden popularity of radio. The Newberry Electric Co. now run daily ads in the papers and have large cards in their windows, advertising their complete line of radio parts,

JOS. M. ZAMOISKI COMPANY THE ELECTRIFIERS

RADIO BUILDING

BALTIMORE, MD.

—DISTRIBUTORS—

Radio Corporation of America
De Forest Radio T. & T. Co.
Clapp-Eastham Co.
Colin B. Kennedy Co.
Acme Manufacturing Co.
American Radio & Research Co.
"Amrad" Products
Chelsea Radio Manufacturing Co.
Westinghouse Electric & Mfg. Co.
Wm. J. Murdock Co.
Brandes, Inc.
Herbert Frost
Remler Radio Manufacturing Co.
Beaver Manufacturing Co.

Crosley Manufacturing Co.
C. D. Tuska Co.
Magnavox Co.
Adams-Morgan Co. "Paragon"
Products
Copperweld Wire Co.
Baldwin Radio Co.
Johns-Manville Co.
Formica Insulate Co.
Electrifier Products "B" Batteries
Dubilier Condensor Co.
Englert Mfg. Co. "Dragon" Batteries

See us for prompt deliveries

and inviting all users to consult them regarding any of the problems of wireless construction. They recently backed up their printed publicity with an interesting display, showing the receiving box, ear phone, and the antenna kit, together with the horn, and a little card containing a brief explanation of each.

The Electric Appliance Co. was another firm that installed a window display that could be duplicated to advantage by any dealer handling radio supplies. At one end was a miniature log lodge, two feet high, and at the other a reproduction of one of the old adobe missions, each of which had a wireless outfit on the roof. Between them, on a table, was a magnavox, coils of wire, and receiving box, and various radio parts were scattered over the floor, while a large card suggested: "Place your order with us for your radio sets and radio equipment."

The Beacon Light Co. who have been featuring radio for perhaps a longer time than any of the others, have used from time to time a display that could well be emulated by other electric appliance dealers. The window is fitted up to represent the wireless room of a ship at sea, and there is an operator in naval uniform taking messages from the air, which he writes out on a typewriter and hands to a little cabin boy who holds them up for the crowds—which line the windows three deep—to see. Close to the glass, on a long bench, are shown several radio sets and all the apparatus that goes to the making of one. A card among the parts suggests: "Come to us for radio equipment, and tell us any difficulties you have experienced in the construction of your set."

Sponsored By Schools

Radio in Los Angeles was given an immense impetus through the Children's Exposition held the last week in April in a series of tents at one of the parks. It was sponsored by the faculty of all the grade and high schools of the city of Los Angeles, and contained over 30,000 separate entries made by the children. These included toys of all kinds, wood and brass working, drawings, etc. There were two separate exhibits of radio equipment, one by the boys of the grades and the other by the high school boys, as well as various electrical appliances made by the students in the electricity class.

The Times, one of the local papers, has a big radio station, with several operators at work, and a reception room with magnavox, where each afternoon and evening concerts are given, list-

ened to with pleasure by hundreds of juvenile visitors and their parents and friends.

Progress of Radio

By E. P. EDWARDS,

Manager of Radio Department, General Electric Company, Gives Views

Radio broadcasting which started last fall, completely upset the radio market. A year ago we believed the meat and backbone of radio to be communication, particularly trans-oceanic communication which would involve the use of millions of dollars worth of apparatus.

The needs of the radio amateur with his little transmitting or receiving station were considered an interesting sideline. This company did a comfortable business selling transformers, tubes, sockets, rheostats, and other parts of apparatus to the amateur or person interested in assembling his own set perhaps bit by bit on the kitchen table.

At that time about 94 per cent of the demand was for component parts of the radio set and not for the assembled set. Then broadcasting came along and everything changed. The radio amateur became the big part of the business and the amateur suddenly began demanding whole or assembled sets not parts. This amateur was not primarily a mechanic; he wanted music and entertainment of other sorts in a hurry and without too much trouble. The demand for assembled sets became 90 per cent of the radio business, although the demand for component parts became much greater than the demand a year ago.

Following company policy in the attempt to meet this demand for radio apparatus, the General Electric took immediate steps for quantity production. Seventy-five per cent of the company's tool makers were set to work constructing the 108 special dies, tools, jigs and other fixtures required for standardized production. Of course this delayed the production of complete sets but will make possible the production within a very short time of 8,000 to 10,000 units per month.

The company has just started in the production of its tube set, which after months of experimentation is believed by our engineers to be an efficient and well constructed receiving set. This is being manufactured much the same as sectional bookcases in that it can be added to from time to time as the amateur desires to reach out farther and farther in the ether for signals. This set is in addition to a small and inexpensive crystal set, which has been

turned out at the rate of 500 a week for the past couple of months.

Other sets designed to meet the demand as it exists and as it develops will be brought out from time to time until a complete line is in production so that every class of user will be able to get what he wants in season, both from the standpoint of performance and artistic merit.

Much is being said regarding the scarcity of vacuum tubes. Manufacturers have been accused of holding them back in order to increase the demand. The truth is quite the contrary. The trouble is that production has not been able to keep pace with the rapidly increasing demand.

A year ago this company was authorized by the Radio Corporation of America, holders of the licenses under which the tubes are manufactured and sold, to produce the detector and amplifying tubes at the rate of approximately 10,000 a month. Nine tenths of the demand is for these two style tubes known as Radiotrons 200 and 201.

This rate of production was reached in February 1921, and maintained until the middle of the summer, at which time it was found necessary to reduce the rate to approximately 5,000 tubes a month because the market was not absorbing the production. The rate of 5,000 a month was maintained until November.

Then broadcasting hit us. After that week after week the demand soared skyward and production also soared, but it was absolutely impossible to keep abreast of such a sudden and unexpected movement.

When I appeared before Secretary Hoover's radio conference in Washington a number of weeks ago, I estimated the demand for tubes was at the rate of 90,000 a month. We were then producing 60,000 tubes a month. Today we are manufacturing 200,000 a month. This production is about forty times as great as our production six months ago. I would not call that holding back.

Another bit of equipment, at first not considered a part of radio requirements but which has been seriously affected by the radio boom, is the Tungar rectifier. This is a device which is used for recharging automobile storage batteries by using the alternating or regular lighting current. It is now in great demand by the radio fan who has batteries to be recharged and during January of this year more Tungars were sold than during the whole year of 1921.

Radio Ladies' Night

The Rochester, N. Y., section of the American Institute of Electrical Engineers held a ladies night meeting at the Chamber of Commerce Assembly Hall sometime ago, featuring a radio demonstration and an address on "Electrical Applications to the Home" by William L. Goodwin of The Society for Electrical Development. Previous to his address in person, Mr. Goodwin broadcasted his talk through the medium of the sending station of the Rochester Times-Union.

Mr. Manson chief engineer of the Stromberg-Carlson Telephone Manufacturing Company, rigged up a wireless outfit to receive the message and opened the meeting over the radiophone. Local contractors displayed the various types of wireless equipment available; also a display of electrical appliances, including washing machines, sewing machines, vacuum cleaners, etc.

The papers and meetings committee of the American Institute of Electrical Engineers extended an invitation to the local contractors to coöperate by having a suitable display of household appliances and wireless equipment. The co-operation was secured and the interest shown in the exhibit at the conclusion of the meeting more than surprised the exhibitors.

Blueprints of Sets

Radio sales depend to such a great extent on the amateur who makes much of his equipment himself that all the assistance he can be given will help in merchandising some of the parts that the electrical store stocks. The Experimenters' Information Service, 220 West Forty-Second Street, has prepared a number of blueprints size 21 x 28 inches for this purpose. The subjects include 100-1000 meter loop receiver, 1000-25000 metal loop receiver, special 360 meter radiophone receiver, special beginner's drawing, Armstrong regenerative receiver, and many other receiving outfits. There are also a number of transmitting designs available.

Starts Radio Department

The Schimmel Electric Supply Co., 526 Arch Street, Philadelphia, has opened a radio department on the sixth floor of its building. David M. Trilling, manager of the department, has arranged for a series of talks for the benefit of dealers who desire to familiarize themselves with the subject. The talks are nontechnical and well illustrated. The Schimmel Company is wholesale distributor for electrical and radio supplies.

New Radio Company

Dr. Miller Reese Hutchison is heading a financial, commercial and technical group known as the Hutchison Radio Co., with offices at 52 Vanderbilt Avenue, New York City. The company has been incorporated and financed for the acquisition, development, and commercialization of non-infringing radio inventions, and for the purchase and distribution of the outputs of manufacturers of efficient, non-infringing radio apparatus.

DICTOGRAPH



Being Shipped
by Us NOW
on Quantity Orders

Let The Radio Stores Corp. keep you supplied to meet the growing demand for this popular Head Set

Immediate Shipments

RADIO STORES CORP.



Radio Stores Variable Condenser

Counter weight under dial. Brass studs through aluminum plates and die cast. Shaft held in true center through brass bushings. Binding posts mounted on metal straps. No insulating material tapped—metal inserts throughout.

List—23 Plate .0005 Mfd. \$4.25

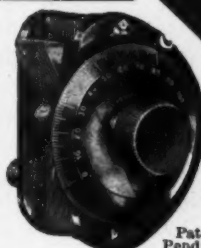
Maximum to minimum capacity ratio, 12-1.

43 Plate .001 Mfd. \$4.75

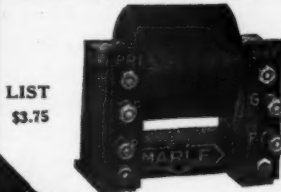
Maximum to minimum capacity ratio, 22-1.

Complete with Knob, Dial and Counter Weight.

Immediate Shipments! Type VCI



Pat.
Pend.



LIST
\$3.75

Audio Frequency Amplifying Transformer

Effective Frequency range, 70/3500 cycles. No distortion or howling; impregnated, moisture proof. Separate Primary and Secondary terminal boards prevent leakage. Used by biggest reputable manufacturers of radio apparatus. Immediate Shipments!

UNBREAKABLE!

222
West
34th St.
New York City

R. S. C.
TORPEDO
PLUG



LIST \$1.25

All conductive parts of heavy machined brass, insulated throughout. Designed to insure rigidity, durability. Ready for shipment.
Dept. G, 222 W. 34th St., N. Y.
RADIO STORES CORP.,

Jobbers and Distributors of RADIO APPARATUS

for immediate shipment of complete sets and all radio parts and supplies.

JAMES F. BURNS ELECTRIC WORKS

442 State Street,

SCHENECTADY,

NEW YORK

When

you want a man, or want a job, or want to buy or sell special electrical equipment, consult the MARKET PLACE of the NATIONAL ELECTRAGIST.

Woman Conducts Radio School

By H. O. BISHOP

**Mary Texanna Loomis of Washington
Has Successful Educational Institution**

The following article is reprinted from the Dearnborn Independent:

Mary Texanna Loomis of Washington, D. C., has the distinction of being the only woman in the world who conducts a radio school. There is nothing faddish nor experimental about Miss Loomis' educational institution. It is already a distinct success and is known throughout the world. Bright young men who have graduated from the Loomis Radio School can today be found on vessels plying the seven seas of the world.

"How did you happen to get the idea of starting a radio school?" I asked Miss Loomis.

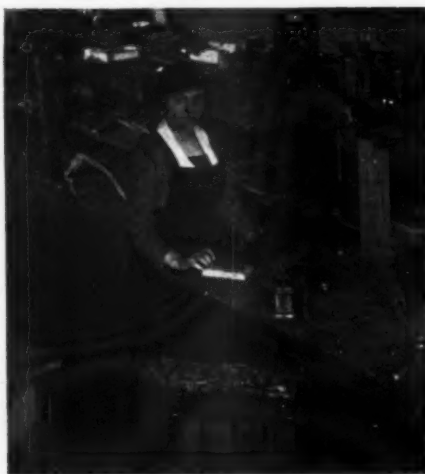
"There were two reasons why I launched into this fascinating work," she replied. "In the early stages of the World War I was eager to do something useful for my country and therefore mastered wireless telegraphy. The United States department of commerce thought sufficiently well of my ability to grant me a first grade radio license, and by the time the armistice was signed I was so fascinated with the work that I just hated to give it up and return to what seemed like ordinary everyday endeavors. Suddenly recalling the fact that a cousin of mine, Dr. Mahlon Loomis, was really responsible for giving to the world wireless telegraphy, having invented and demonstrated it some years before Mr. Marconi was born, the happy thought came to me that right now was my opportunity to do something worth while in honor of his memory. I therefore dug right down to the bottom of my bank account and founded a school in honor of that pioneer electrical inventor who in 1865 sent the first aerial telegraph message between two peaks of the Blue Ridge Mountains in Virginia. My great ambition is to obtain the worldwide credit that is due his memory."

"What sort of young men are taking up the radio profession?" was my next inquiry.

"The kind who have grit and want to get there! Virtually all of them are ambitious and enthusiastic over the possibility of visiting every nook and corner of the world. My students are not only enrolled from various sections of the United States and Canada, but from

many foreign countries, such as Sweden, Ireland, England, Poland, Russia, Austria, Rumania and the Philippines. One of the brightest pupils I ever had was Prince Walimuhomed of far away Afghanistan. He was an extremely modest young man, keeping his real identity a secret until after graduating. He said he had no idea of earning his living by working at radio, but just wanted to know all about it. He does.

"You have no idea how much happiness I get out of the success of each individual graduate. My boys keep in touch with me from all parts of the world. Scarcely a day goes by that I



Miss Loomis at Work

do not get some trinket or postcard from some remote section of the world. I have made the wonderful discovery that the only way for me to get happiness for myself is to make some one else happy. I find that I am making these young men happy by teaching them every phase of the radio business so that they can earn a comfortable living for themselves and their dependents, and at the same time see the great big beautiful world.

"Really I am so infatuated with my work that I delight in spending from twelve to fifteen hours a day at it. My whole heart and soul are in this radio school."

I discovered that every conceivable radio appliance can be found in the Loomis school; and, strange to say almost all of it was constructed by Miss Loomis herself. There is not a single wireless apparatus used on battleships,

merchant vessels, or land stations that she does not have for the benefit of her boys.

In addition to the regulation classrooms, Miss Loomis has fitted up a combination carpenter, machine, electrical, drafting, and blue print shop. She can operate a lathe, use a handsaw, monkey wrench, pliers, or any of the tools incident to these trades.

"How would I know, or how could I teach, the practical side of radio unless I knew all about the apparatus, both inside and outside?" was her retort when I asked why she bothered about the workings of such a shop.

"No man," she continued, "can graduate from my school until he learns how to make any part of the apparatus. I give him a blue print of what I want him to do and tell him to go into the shop and keep hammering away until the job is completed. I want my graduates to be able to meet any emergency or mishap that may arise some day far out on the sea."

"Miss Loomis," I joking inquired, "if you work only twelve or fifteen hours a day in your school, what do you do with all your spare time?"

"Oh, the rest of my time is devoted to the writing of textbooks and lectures on radio. I have just complete a book on the theory of radio. It goes to the publisher in a day or two."

Further questioning brought forth the information that previous to her debut in the radio field, Miss Loomis had gone in for music and languages. She can speak French, Italian and German.

"What is the explanation of that odd middle name—Texanna?" was the final question of the interview.

"That was given me by my mother in honor of the state where I first saw the light of day. You see, I happened to be born in a homesteader's shack away down in Texas, some miles from the historic town of Goliad."

Increase Your Earnings

Are you one upon whom the boss or the trade can depend? When you make a promise, do they know that you'll keep it? If they have not this faith in you, you will increase your earnings by seeing to it that they do.

SHUR-GRIP RADIO PLUG

(Patent Applied for)

Price \$1.50 each

*"The Plug that
Holds"*



A scientifically constructed interchangeable telephone plug, so simple that anyone can connect or disconnect it instantly without tools.

Manufactured only by
MARTIN-COPELAND COMPANY
Radio Products
PROVIDENCE, R. I.

Hard Rubber Turning

FOR

ELECTRICAL, SURGICAL
and EXPERIMENTAL PURPOSES

Send Sample or Sketch for Quotation.
Estimates Cheerfully Given.

RADIO PANELS

Cut to any size on short notice.

"RADION" HARD RUBBER especially manufactured for Radio Work—in Black, Brown, Mahoganite (Mahogany Grain). $\frac{1}{8}$ ", $\frac{3}{16}$ " and $\frac{1}{4}$ " thick.

CONDENSER BASES DETECTOR BASES
Special Knobs, Handles, Discs, Washers, Bushings, etc.
Made to Order.

SHEETS RODS TUBES

NEW YORK HARD RUBBER TURNING CO.
212 Centre Street New York City
TELEPHONE CANAL 8315

RADIO PARTS

Knobs—Dials—Ear Caps—Strain Insulators—Etc.

"MEGOHMO" MOULDED INSULATION

METAL STAMPINGS

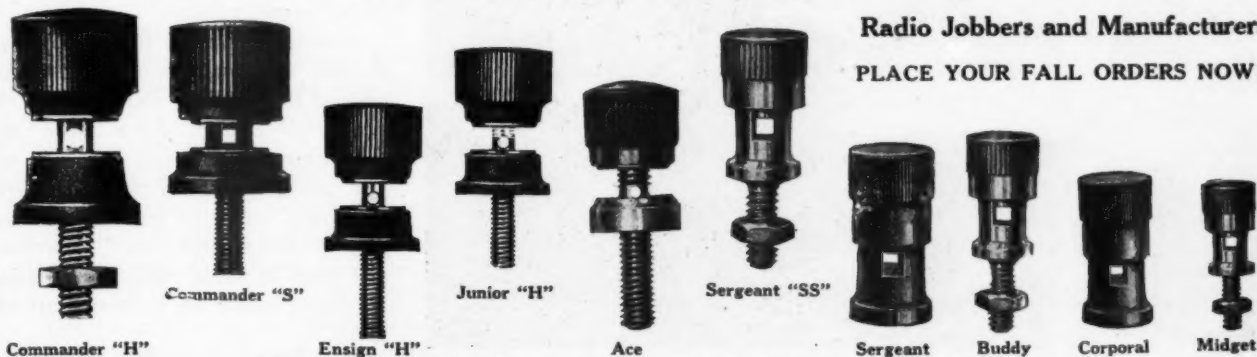
From Your Blue Print Or Samples

WATERBURY BUTTON CO.

Manufacturers Since 1812
WATERBURY, CONN.

OFFICES—NEW YORK BOSTON PHILADELPHIA CHICAGO SAN FRANCISCO TORONTO, ONT.

EBY BINDING POSTS ARE NOW AMERICA'S STANDARD



Radio Jobbers and Manufacturers
PLACE YOUR FALL ORDERS NOW!

Commander "H" Commander "S" Ensign "H" Junior "H" Ace Sergeant "SS" Sergeant Buddy Corporal Midget
WRITE FOR BULLETIN NO. 10—ALSO OUR LATEST TRADE DISCOUNTS
THE H. H. EBY MFG. CO. 605 Arch St. **PHILADELPHIA**

Radio Demand

The Jobbers' House Magazine Service issued by the news bureau of the General Electric Company, in its May issue has the leading article devoted to the subject of radio demand. E. P. Edwards, manager of the radio department, has told of the enormous demand for wireless apparatus and of the steps which have been taken to meet it.

Adopt Radio Regulations

The Philadelphia Fire Underwriters' Association has published a booklet of tentative regulations for radio signaling apparatus, both receiving and sending. The regulations are issued to secure field experience in advance of consideration of them as a revision to the present rules on radio signaling apparatus in the National Electrical Code. The rules are dated as of May, 1922. Copies may be had by addressing the association, 131 South Fourth Street, Philadelphia.

Radio Chamber of Commerce Formed

Manufacturers Organize to Protect Public and Uplift Industry

At a meeting recently held in New York, the newly organized National Radio Chamber of Commerce definitely outlined plans and elected temporary officers. The officers elected at this meeting are: president, Alex. Eisemann of the Freed-Eisemann Radio Corporation; 1st vice president, Charles Keator of the DeForest Radio Telephone and Telegraph Company; 2nd vice president, William Dubilier of the Dubilier Condenser Co.; secretary, Frank Hinnery of the Home Radio Corporation; and treasurer, Joseph D. R. Freed of the Freed-Eisemann Radio Corporation.

The purpose of the National Radio Chamber of Commerce is to remedy certain conditions which have arisen in the radio industry as a result of its tremendous growth within the last few months; and to group together manu-

facturers whose radio products are of such dependable character as to maintain favorable public opinion toward the radio industry.

Members Will Be Added

It is stated that all radio manufacturers, whether large or small, will be eligible for membership. The original group consisted of about fifteen manufacturers. To this body there will be added by invitation about twenty additional concerns whose business standing and whose products are known to be of high order. New concerns will be eligible after their apparatus has been passed upon by a board of five members. This board will be appointed at the next meeting after new members, whose products have already been passed upon, are added to the membership list.

It is planned to exclude from the membership, various concerns which have been organized purely for stock jobbing purposes, and to exclude also manufacturers who are now turning out radio apparatus which has been found to be untrustworthy and which will eventually bring radio into disfavor on the part of purchasers of such dependable apparatus.

Were badly Advised

It is also stated that a large number of persons have entered into the business who are placing on the market carelessly constructed merchandise which after a few months' use will be worthless in the hands of the consumers. Many of these new concerns are innocently infringing upon existing patents. This infringement is due to the fact that the financiers back of these concerns have taken for granted the advice of some so-called expert, and therefore through ignorance or unscrupulousness, are clearly infringing government granted rights, either in the form of patents or patents applied for of the older manufacturers.

It is also planned that this body will decide whether or not its members should take part in public radio shows, many of which have been started throughout the country, and run merely for the purpose of exploiting manufacturers' and the public's interest in radio. The Chamber of Commerce does not plan to undertake the organization of radio shows on its own part at this time.

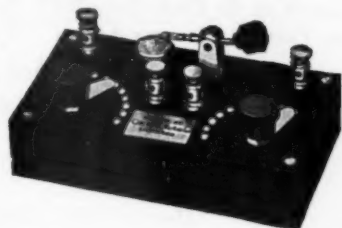
A credit bureau will also be organized shortly for the interchange of credit information.



Young Bob Goodman of San Francisco Has Been Badly Hit by Radio Craze and Takes His Instruments With Him Wherever He Goes. He is Seen Here Listening to Concert During Sunday Hike at Land's End

Vest Pocket Receiving Set

That the receiving set is really a vest pocket edition is evidenced by the fact that the illustration is half size. This is the Beaver Baby Grand receiving set being made by the Beaver Machine & Tool Co., Inc., 50 Church Street, New York City. It can be sold as an inexpensive set for the



novice or as a portable set for the automobile, camper, etc. The set, which is all contained on the base, includes tuner, crystal detector, binding posts, etc., and sells for \$10. With headpieces the price is \$18. Antenna equipment is not included.

Disbecker Console Cabinet

Around the recently perfected Western Electric loud speaking telephone outfit, a new radio cabinet set designed for the drawing room has been constructed by Disbecker & Co., 15 West Thirty-fifth Street, New York City.

The new radio receiving set, known as the Consolette, is mounted in a cabinet of mahogany or walnut wood. The radio receiving apparatus itself consists of a detector



vacuum tube, tuner, and one stage of amplification. It is of the nonregenerative type. This is hooked up with the Western Electric loud speaking telephone outfit. This latter apparatus steps up the sound to fill a good sized room with the aid of a two stage vacuum tube amplifier, equipped with three vacuum tubes.

One tube is used for the first stage of amplification, the other two, connected on the differential principle, for the second stage. By the employment of the scheme of connections used, the circuit is compensated in a manner to secure faithfulness in tone and speech reproduction.

Only one stage of amplification is employed in the radio receiving set itself in order to do away with the possibility of howling. The cabinet contains A and B batteries and every other part except the antenna.

Mr. Dealer:

The combined circulation of these papers is—

3,843,600

NEW YORK GLOBE	CHICAGO TRIBUNE
" " MAIL	CHICAGO DAILY NEWS
" " WORLD	SAN FRANCISCO
" " TELEGRAM	CHRONICLE
" " TRIBUNE	PITTSBURGH POST
NEWARK SUNDAY CALL	PITTSBURGH DISPATCH
PHILADELPHIA	SCHENECTADY
INQUIRER	GAZETTE
WASHINGTON TIMES	ALBANY PRESS
BALTIMORE SUN	BOSTON HERALD
CLEVELAND PLAIN	BOSTON GLOBE
DEALER	MINNEAPOLIS TRIBUNE
SIOUX CITY TRIBUNE	MILWAUKEE SENTINEL
OAKLAND TRIBUNE	POPULAR SCIENCE
RADIO WORLD	RADIO
RADIO NEWS	MOTION PICTURE NEWS
EXHIBITORS TRADE	RADIO BROADCAST
REVIEW	
NATIONAL ELEC-	
TRAGIST	

This is a partial list of papers we are using in our national advertising campaign.

RADIO FOR BEGINNERS

160 pages

200 illustrations

One Dollar

RADIO DICTIONARY

50 Cents

HOW TO BUILD YOUR OWN RADIO SET

25 Cents

These books are by James R. Cameron—whose text books are used by the U. S. Dept. of Public Instruction—and Boards of Education throughout the world.

—ATTRACTIVE DISCOUNTS—

THE TECHNICAL BOOK CO.

130 West 42d Street, New York

Emphasizing Clean Up Week as a Sales Stimulator

By W. B. STODDARD

The Housewife Should Be Sold on the Ease With Which Her Home Can Be Kept Clean By Using Electrical Servants—Here Are Some Hints in Getting Your Vacuum Cleaners Across

The idea of a National Clean Up Week is becoming more popular each year and more cities are devoting time and effort to engendering the spirit of a thorough cleaning up of both business and residence properties. The dealers in vacuum cleaners should take advantage of this to let the housewife know how easy it is not only to clean up but to *keep clean* by a few minutes use each day of the electric vacuum cleaner.

Houston, Texas, is a city in point. Last year an entire page was used in the rotogravure section of the Sunday paper to call attention to the clean up idea. A diagonal line of people, all pushing on a big brush extended entirely across the page from top to bottom and this was captioned: "Get Behind the Brush." This was too good an opportunity to be lost by the Neches Electric Co., of that city, so they proceeded to run a quarter page vacuum cleaner advertisement:

AN ELECTRIC SUCTION SWEEPER

*is an able assistant during
NATIONAL CLEAN UP WEEK*

Thousands upon thousands of electric vacuum cleaners will be appreciated for their real merit during the coming week as never before, for it will be national clean up week. Throughout the country those fortunate women who already have vacuum cleaners will enter this national movement with no dread whatever, in so far as the home goes, for they realize what an able assistant a vacuum cleaner really is.

*WE ARE THE EXCLUSIVE
HOUSTON AGENTS FOR THE
BLANK, and we want to demonstrate this wonderful machine in your own home, on your own rugs or carpets. If you do not care to pay cash, we will arrange convenient terms for you.*

They supplemented this newspaper advertising with little cards which they sent to all housewives:

ARE YOU READY FOR NATIONAL CLEAN UP WEEK

If you have not already an electric suction cleaner may we not have the privilege of demonstrating it through practicability in your own home? You will surely want to have one of these cleaners before starting to do your spring cleaning. Tear off the bottom of this card, stating when it will be convenient, and we will send a demonstrator to you whenever you desire.

All cards returned were tabulated, and whether the machine was bought at once or not the housewife's interest



**Significant Appeal of Parront and Owl
Attracts Attention**

was not allowed to lag. If she bought they sent a man about a month later to see if it was working perfectly, and literature to maintain her interest was sent at intervals.

Winter and early spring sees indoor festivities at their height and many a hostess will gladly take the time to look into the merits of a vacuum cleaner if it is brought to her attention in as chatty and forceful manner as that of the Barnes Electric Construction Co., Ltd., New Orleans, La., in its message of:

THE MORNING AFTER

The morning after my card party—gracious, what a muss! It had rained a little that day and twenty pairs of shoes had ground the dirt into the rugs under five tables. I was simply discouraged.

However, Marie and I went at

it as soon as we had cleaned up the breakfast dishes and were in the midst of the dust when Dora dropped in on her way shopping.

"Mercy!" she cried, "Why in the world, Clara, don't you get an electric vacuum cleaner? You'll ruin everything in the house."

Well the card party clinched it. Fred bought me a vacuum cleaner, and since then I've had no fear of the "Morning After."

You know that sometimes a thunder storm brings a dozen youngsters tracking mud into the house; or the snow thaws down to the accumulated grime of the winter and you get it all over the house; or the trucks come along with ten tons of coal and some of the dust gets upstairs in spite of you. All the backbreaking labor of sweeping and cleaning in these cases is obviated if you have an electric suction sweeper. Just a few simple passes over the furniture, rugs and draperies—and everything is clean again.

Perhaps the most novel and unusual series of advertisements designed to get the vacuum cleaner before the public was that run some time ago by the Doty-Salisbury Co., Flint, Mich. In this they instituted divorce proceedings against Madam Dirt, with Royal Ka-Shan, a fine Oriental rug, as plaintiff, and a well known electric vacuum cleaner as the attorney employed by said plaintiff.

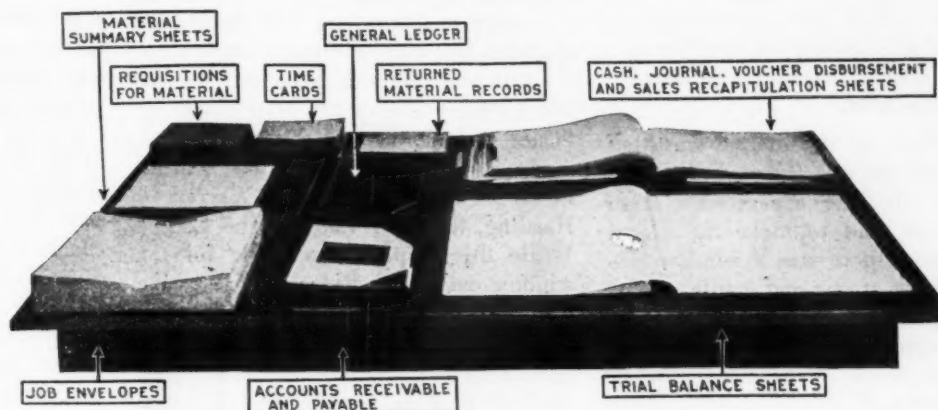
Advertisements were used wherein the case was set forth, stating that it was between "Madam Dirt, of the public thoroughfare" and "Royal Ka-Shan, a rug in the service of Doty-Salisbury, and that the case was now in the hands of the jury of public opinion. A series of ads were run, covering the entire trial, which was written up in regular newspaper style, and the initial ad read:

"During the last nine days you have all viewed his Rug Honor Royal Ka-Shan, lying prostrate

The Electragist Employing a Bookkeeper Should Use the

Standard Accounting System

*Here is the
complete set
just as
it looks
spread out
on an
ordinary
office table*



This is the system adopted by the National Association of Electrical Contractors and Dealers, endorsed by the National Electrical Credit Association, and approved by other branches of the electrical industry.

The Electragial Business Without a Bookkeeper Should Use the

New Business Record

This is an easy and simple way of keeping your accounts without the aid of a bookkeeper. Everything about it is plain and easily understood from start to finish. It consists of only eight forms, and these show the money taken in and paid out; the bills to be collected and to be paid; the general expense, investment and stock. There also is a binder for records, and a simple memo book.

IT TELLS YOU

How much money you have; how much you owe; how much money is due you; how much stock on hand; how much stock you buy; how much you sell; how much it costs you to do business; how much profit you make; or how much you lose; and all other necessary facts regarding your business.

DEPEND ON IT

It is handy, and always ready for you to use; it is reliable and accurate; it saves you time, money, and worry; it settles disputes and saves money for you; it helps you straighten out matters with your banker, your jobber, and the tax collector; it is a necessary factor in your business.

**Look Into this Matter Today and Figure on Starting Your Business Record or
Standard Accounting System**

FULL INFORMATION SENT UPON REQUEST BY THE

National Association of Electrical Contractors and Dealers

15 West 37th Street, New York City

upon the pavement (the rug was laid out upon the walk in front of the store each morning and walked over by hundreds of feet). During all this time he has been the subject of most bitter, brutal physical attacks by said Madam Dirt. Tomorrow, in the Court of Usage he will apply for immediate separate separation and in said proceedings will be ably served by Mr. Electric Vacuum Cleaner. Watch for the verdict."

The upshot of the matter was that Royal Ka-Shan was granted "a complete and absolute separation" from Madam Dirt, and to make the moral more pointed there was a window display, showing at one end a pile of dirt taken from the rug by the vacuum cleaner, which stood on a little platform in the center of the display, while at the other end, over a chair, was the thoroughly cleaned and rehabilitated Royal Ka-Shan rug, looking very new and handsome. This series of ads called attention not only to the vacuum cleaner, but to their large line of imported and domestic rugs as well.

But uses never before heard of to which a vacuum cleaner can be put was demonstrated at the Iowa State Fair, at Des Moines last fall. At the stock pavilion a great crowd gathered to witness the cleansing by the vacuum cleaner of the prize bull belonging to a local farmer. The results obtained astonished many stockmen, and the bull thoroughly enjoyed it.

Pictures of the bull before, during and after the electric cleaning were taken and displayed in the window of the store staging the demonstration. In this way the cleaner was brought to the attention of scores of stockmen who had not previously thought much about it. Beside it was one of the vacuum cleaners with a prominent card:

**WHAT WIFE ISN'T WORTH
EIGHTEEN CENTS A DAY
TO HER HUSBAND?**

Lives there a good husband in this locality who does not think his wife's time, strength, and looks are worth 18c a day? That's all it costs to buy an electric vacuum cleaner. 18c a day—at the rate of \$5.50 a month for it is only a short time before your payments cease, but like John Brown's body, the vacuum cleaner goes marching on, beating, sweeping and cleaning the

carpets and rugs, and relieving your wife of the back-breaking, wrinkle-making sweeping job.

The Terre Haute Light & Power Co., Terre Haute, Ind., has its window backed and floored with broad strips of sky blue paper upon which yellow flowers were scattered. At one end was the life size cutout of a little girl holding a modern vacuum cleaner, while at the other end was an old fashioned machine that had seen much service.

Particular interest attached to the latter on account of the card beside it: "One of the first Hoover sweepers made; owned and use in her Marion home for ten years by Mrs. Warren G. Harding, the First Lady in the Land." While this display was made in the window, an actual demonstration of the



Comparing the Old With the New

vacuum cleaner was made in an alcove inside the store.

The Citizens Gas & Electric Co., Council Bluffs, Iowa, had a clean cut display, the central figure being the same cardboard child as just described holding a suction cleaner, which she appeared to be manipulating, as a swath was cut through a quantity of salt sprinkled on a small rug beneath her feet.

The background of the display was pale green. At one end was a black and gold perch, twined with spring flowers and foliage, on which sat a brilliant parrot from whose beak extended a narrow ribbon to a card fastened to the perch. The Parrot Says: "Any old vacuum cleaner."

At the other end was a similar perch holding a white owl, with the card: The Wise Old Owl Says: "Hoo-Hoo-Hoover!" A card on the wall suggested: "Let us WISE you up on the many good points of the Electric Suction Sweeper;" while a card on the floor added: "A small payment will deliver a machine to your home."

The firm of Herman Strauss & Sons Co., Louisville, Ky., had an excellent

display to be used just prior to National Clean Up Week. The background was of gray, and a dozen pedestals were covered with drapes of dark green velvet. On each of these was placed a vacuum cleaner, and from each ran a narrow red ribbon, the entire cluster being gathered in a bow in the center of the ceiling. Between the center pedestals were tripods of brooms, and cards scattered through the display called attention to the coming clean up week, and advocated the early purchase of the proper cleansing instruments.

Just as a closing hint, since so many of the electric cleaners are sold on time, and patrons are sometimes lax in their payments, it might be well for all merchants to follow the example of a furniture store in Racine, Wis., who kept the time of payment before his customers by sending them each month, shortly before the monthly payment became due, a little note. A flag in the index cards brings up the card of a customer three days before payment is due, and the mail clerk then sends a card:

Inasmuch as the next payment on your vacuum cleaner is due on (date) I want to call your attention to the special sale to be held on that date, so that you will find both profit and pleasure in your visit to the store to make your payment.

Elimination of Tax Saves Public Money

The public will save approximately \$1,500,000 a month as a result of the elimination of the war tax on express shipments, according to George C. Taylor, President of the American Railway Express Company.

The "Revenue Act of 1921" eliminates the war tax of one cent on every twenty cents and fractions thereof in transportation charges on all express shipments. This tax during the year 1920 amounted to \$17,502,918. The average transportation charge for each express shipment was approximately \$1.50 and the average war tax for each shipment was eight cents.

The elimination of the tax, therefore, will virtually amount to a decrease in rates of a little over five percent. Mr. Taylor believes that this should have a tendency to stimulate business and thereby accelerate the rapidly improving conditions throughout the entire country.

St. Louis Radio Show

The Southwest Radio Show will be held in the Coliseum, St. Louis, Mo., July 3 to 8 inclusive. The management of the show is in the hands of the Southwest Exhibitors' Association, Inc., Coliseum.

Woman Broadcasts Stories

This is Eunice L. Randall who sends thousands of youngsters to the land of nod every Tuesday and Thursday night. The accompanying illustration shows her broadcasting soothing tales from the Amrad radiophone station WGI to a family circle of 1,000 miles.

Miss Randall enjoys the reputation of being one of the pioneer figures in the development of radio broadcasting. She is known from coast to coast. Daytimes she is employed as a radio designer by the American Radio and Research Corporation at Medford Hillside and as far as known is the only woman radio designer in the industry today. Letters received by the corporation indicate that Miss Randall's stories are listened to by the young and old alike. Not only does she regularly give the bedtime stories, but on occasion of emergency she has even operated the broadcasting station.

Miss Randall is an accredited member of the American Radio Relay League and has recently installed a radio transmitting and receiving station at her home at Mattapoisett, Mass., that would compare with the station of any mere male amateur in the country. Her antenna system is of the umbrella type. The steel mast is one hundred feet in height. The operating room is nearly half a mile from the aerial system.



Eunice L. Randall, Lover of Children, Finds Unusual Opportunity Through Radio to Meet Her Ambition

Sherman Products

were found well adapted to meet
the new demands of

RADIO

An established standard line, properly made to insure safety, efficiency and economy. Not makeshift stuff made in haste.

SHERMAN TERMINALS

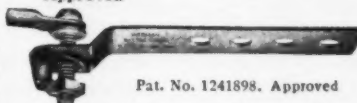


A wide variety of styles and sizes for all electrical purposes. Several types especially designed for radio use.

SHERMAN GROUND CLAMPS

Approved

One piece. All copper. Most easily applied either with or without using solder. Grips absolutely tight, and stays tight. Adjustable—made in four sizes. A screw driver only is needed to apply.

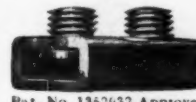


Pat. No. 1241898. Approved

SHERMAN FIXTURE CONNECTOR

Approved

An ingenious and universally popular device for connecting small wires (No. 12 or smaller), *without solder*. All brass—one piece. The screws can't come out.



Pat. No. 1352632. Approved

SHERMAN SOLDERING LUGS

Approved



U. S. PAT. REISSUE No. 14401

Approved

The best quality and most complete line in all sizes from 30 to 1000 amperes capacity.

SET SCREW CONNECTORS (Brass)

A standard article improved by care and accuracy in manufacture, and having rust-proof screws. The large variety of sizes permits many uses in radio work as well as general electrical use.



Besides being the standard throughout the Electrical Field, Sherman Products are found in all well established stocks of Radio Apparatus, and are being widely utilized by manufacturers of Radio apparatus.

Prompt Shipments



H. B. Sherman Mfg. Co.

Battle Creek, Michigan

De Veau Phonograph Attachment

De Veau phonograph attachments made by Stanley & Patterson, West and Hubert Streets, New York City, can be used on any standard phonograph without injury to the machine. The device is in effect a loud speaker using the carefully designed sound deflecting portion of the phono-



graph in place of the customary horn. The only change necessary is to remove the reproducing unit of the phonograph and slip the De Veau attachment into the socket.

Prices are \$15 for the attachment complete with sound receiving unit for Victrola or Grafonola and \$16.50 for Edison. The attachments only without sound receiving units are \$1.50 for Victrola and Grafonola and \$3 for Edison. The De Veau receiver-adaptor for use with horn and without sound receiving unit is \$1.50. All of these attachments are finished in nickel but can be furnished in mat gold finish at \$1 extra.

Eby Ace Binding Post

A new binding post named the Ace, similar in design to the Ensign and Junior posts already on the market, has been brought out by the H. H. Eby Mfg. Co., 605 Arch Street, Philadelphia. The post has a nickel plated brass base with



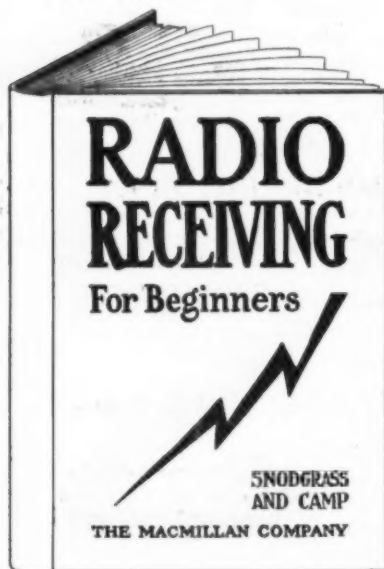
solid 8 x 32 threaded stem extending approximately 1/2 inch below the base. The base of the post is heavily knurled to prevent turning when mounted, and a hole is drilled through the neck sufficiently large to take a No. 15 bare wire. The post is supplied with a black insulated knob 1/2 inch high.

Broadcasting in Maryland



Joseph M. Zamoiska, president of the company bearing his name, 19 West Liberty Street, Baltimore, has up to the present writing the only broadcasting station in the state of Maryland. In 1919 Mr. Zamoiski began to sell radio and today is the wholesale distributor

for practically all nationally known radio products. He is a pioneer contractor-dealer of Baltimore.



Sell This Book to Every Radio Fan

Dealers throughout the country find that everyone interested in installing radio wants understandable information. You can sell every buyer of radio apparatus one of these books.

"Radio Receiving for Beginners" tells in a few simple words how to select, install and operate Radio Receivers. Describes the equipment ranging from the simplest and cheapest to the most efficient. A school boy can easily grasp the essential principles and it contains no unnecessary information.

Sells for \$1.00. Recognized dealers can buy one dozen with a discount of 25%, or 100 with a discount of 33 1/3%.

ORDERS RECEIVED NOW WILL GET PROMPT DELIVERY.

Send orders to NATIONAL ELECTRAGIST

Room 602—15 West 37th Street, New York

RADIO SERVICE SUPPLEMENT TO THE NATIONAL ELECTRAGIST

PUBLISHED ON THE FIRST OF EVERY MONTH

All Communications Should Be Addressed to
NATIONAL ELECTRAGIST RADIO SERVICE SUPPLEMENT
15 West 37th Street, New York City

Yearly subscriptions to the National Electragist, which includes The Radio Service Supplement as a part of its regular issue, \$2 a year; Radio Service Supplement bound separately, \$1 a year.

National Electragist, formerly Electrical Contractor, was established 21 years ago as the official journal of the National Association of Electrical Contractors & Dealers.

Number Three

AUGUST, 1922

Ten Cents a Copy

Selling or Order Taking

For a year past the selling of radio apparatus and parts has simply been a matter of trying to wait on the customers as fast as possible so that the waiting line would not get too large and then ringing up the cash on the register. A cinch, pretty soft. Everybody said so. That's the reason all the drug stores and the music stores and all the other kind of stores came into the business.

Now things are a little bit changed. There are not so many in the waiting line to buy goods and the salesman behind the counter gets a chance to sit down every once in a while, or think of when the next income tax is due. Well, if the people don't come in you can't sell them anything can you? No. But you can scurry around a bit and get them to come in with local newspaper advertising and the thoughtful use of circulars and circular letters mailed regularly to selected lists of people.

Then when some people do come in to buy, SELL them. Do not stand idly by picking the things out that they say they want. Suggest. SUGGEST. And then SUGGEST some more. If a man wants a storage battery try to sell him a battery charger. If he wants a crystal set, try to sell him a little better set, but do not burn your bridges behind you by telling him the crystal set is no good or he may decide to buy nothing at all. Try to be friendly with the customer. Find out if he has any equipment at all, how it is working, and suggest various additions or changes that will give him more satisfaction.

This is real selling. What we have been doing the past year is order taking. The automobile business a year ago was hit by a slump just like this and everybody said the business was going to pot. Salesmen were in a blue funk and dealers were counting up to see how long they could stave off bankruptcy. Then some of them got busy and did some real selling. They started the salesmen out ringing doorbells and lo and behold, the first thing they knew the orders started coming along again and today the automobile business is on the boom again and the first six months of 1922 have far exceeded the first six months of 1921. And real organized selling did it.

The Feminine Interest

Many electragists have overlooked the fact that the ladies are interested in radio, too. Go into any radio equipped home and you will find a feminine interest which is just as real as the masculine interest. True the man usually has more mechanical ingenuity than the woman and can putter around and adjust the mechanism better than the average woman, but there are many women who can "tune her up" just as well as any man. Try to interest the woman in the

radio part of your business by display, by suggestion, and by real salesmanship.

Get Ready for Fall Business

Radio has had a slump. There is no doubt about it. But business is coming back and will come on with a rush as the days begin to chill and the leaves on the trees tell us that the summer outdoor sports are at an end. The electragist who works hard in these next six weeks to get ready for the fall business will be the one who will profit most when the business comes. And with the coming of fall business will come a healthy glow to the retailing field because many of the drug stores, peddlers and other abortions in the radio field will have given way to the right kind of retailers. Let's go to it and get ready for fall business.

Congress and Radio

It looks as if wave length bands would be settled in the fall when a bill will come before Congress making into a law the regulations at present enforced by the Department of Commerce. This will be a splendid thing for the industry and will be a great boon for every owner of a receiving set. Although the regulations now in force seem to work pretty well, there is still a lot of interference. Entertainment programs have been from time to time overlapping in spite of time schedules and there is at least one large broadcasting station that refuses to start broadcasting until it is given a different wave length from 360 meters.

Improve Broadcasting Programs

Broadcasting programs in general have not been coming up to the mark that was set some six or eight months ago. It is difficult to find out just why this is so. Some of the larger and powerful stations are maintaining the high plane that they started out with and some of the smaller ones are doing the same, but in general the concerts are not so good and the features are not so interesting. There is an increasing tendency for speakers to advertise something they are interested in or the companies that they represent. Perhaps by fall we will get down to something definite.

It is greatly to the interest of every electrical dealer to promote the broadcasting of programs of excellence because it is upon the broadcasting that the future sales of apparatus depends. People are beginning to scan the daily programs, and if they are not attracted they will find amusement for the evening some other way. Perhaps in some cases good programs are not attractively displayed in the announcements printed in the newspapers.

Dealers would do well to watch the broadcasting in their localities and communicate with the stations offering suggestions. It is probable that the stations are often at a loss to know what kind of material the radio audience wants to

hear. Why not start a suggestion box in your store and get your customers to criticize the programs and offer suggestions and then forward this material to the broadcasting stations.

Why the Radio Business is Slowing Up

People Who Said the Radio Fad Would Not Endure Saying "I Told You So"—
Some Thoughts on the Seasonal Character of the Business and Some Other Reasons

The radio business is slowing up. It has been slowing up for more than a month but this was to be expected. It had to come and unfortunately it came at the slow season which made things all the worse.

But it will be up and on its feet again. Do not forget that. And the wise dealers will not throw a good business out of the window and the profits along with it.

The radio business, it must be remembered started in a very small way and consisted largely of apparatus constructed by amateurs. There was no broadcasting as we know it today and the big general public knew very little about the thing and cared less. It was only when broadcasting stations started up and cheap radiophone sets came onto the market that the business took on a real boom.

And boom it was. Just like the boom days in the frontier towns in the west. Coming at a time when general business all over the country was stagnant, the demand for radio apparatus was a godsend to manufacturers of kindred electrical apparatus who found themselves buried under orders that they could not begin to fill. Prices began to soar and the market was soon filled with all kinds of equipment, good, bad and indifferent.

Some unscrupulous manufacturers turned out cheap shoddy products and put a good fat price on them. And got away with it too. The public, the buyer of radio did not know the difference. A lot of this stuff was sold and the trusting buyers, not getting the results they should have gotten, were off of radio for life. There are a lot of dissatisfied customers who were thrown out of the market this way. Many of them will come back and it is up to the dealer to get them back.

Some few dealers knew the character of the goods they were palming off on the public and they are very much to blame for this kind of business. The large majority knew no more about the character of the goods than the purchasers till the kicks began to come in. Then they had to take the blame unless

they could shift it back on the manufacturer, but the wily manufacturer had taken care of that part of it and the dealer found that he had no comeback.

These inferior products, while they represented only a very small part of the radio production of the country, yet had a great effect on sales. Like anything else, a satisfied customer is the best kind of an advertisement and a customer who gets stung will go out of his way to tell others not to buy.

The present slowing up of business due to reasons to be considered will have a very good effect in one way. It will eliminate or almost eliminate the shoddy manufacturer and leave the field to those who are honestly endeavoring to turn out a reliable product at a fair price and with a fair profit to themselves.

The temporary slowing up of business is also going to have a good effect on the price situation. Some of the prices charged for radio apparatus have been out of all proportion. As examples of profiteering, crystals, turned wooden parts for variometers, and tubes for coils stand out as leading the procession. It is pretty generally understood by all that crystals are more or less a matter of chance. They have been retailed at prices all the way from 5 cents to 50 cents and sometimes the 5 cent ones have been better than the 50 cent ones. We have seen crystals wrapped in cotton, packed in small cartons and marked "guaranteed" but without the name of any manufacturer. Who is doing the guaranteeing? And where is the purchaser to take the crystal if he is dissatisfied?

These practises are bad for the industry. We have seen simple turned wooden parts retailed for \$2 and \$3 in spite of the fact that a wooden rolling pin for the kitchen, on which there is considerably more work sells for less than half the smaller sum. Pasteboard tubes, many of them having little merit, have retailed at ridiculously high prices.

One thing that is hurting business as much as anything else is the wave of price cutting. Thousands of drug stores, shoe stores, music stores and other kinds of stores that have no real place in the

radio business stocked heavily with radio apparatus while the going was good and now that it has slackened up, they are trying to get out from under and they are knocking the prices down to anything at all.

They have turned over a good profit and they do not care now if they take a little loss. This material at low prices has to be absorbed before regular retail business can hope to pick up. Many industries that were in boom the last year of the war found themselves in the same situation and the absorbing had to be done before real business could be resumed.

Now as to some of the causes of the slowing up of business. The biggest cause is the good old summer time. Radio is essentially a winter time hobby with many fans. The summer time with its tennis, golf, fishing, automobiling, hiking, swimming, boating and a thousand other pastimes beckons invitingly and it is small wonder that Mr. Public sees the beckoning and goes. The headpieces are hung up, at least for the time being for more seasonable delights. Still some of the dyed-in-the-wool fans keep on listening at least every once in a while. While Mr. Public is not listening, he is not buying. When he sees fit to adjust the headpieces to his ears again, there will be more apparatus he will want and then he will be in the market again.

Along with the good old summertime comes Old Man Static, that mysterious something that lots of wise ones have tried to explain but which seems to resist explanation. Be that as it may, static is playing hobs with the concerts, talks and lectures, and many fans get disgusted with all the weird noises they get through their instruments.

Another thing that has lessened interest is the lowering of the quality of material sent out by most of the broadcasting stations. It has been some time since a real good concert has been sent out in the east at any rate. Maybe all the artists that delighted us last winter have gone to Europe for summer vacations.

A glance at the listed programs of many of the stations does not appeal

very much just now. Maybe they will get better in the fall. If they do not get better, the radio industry will have to get together and see that they are better because sales cannot be expected to mount again till there is something better to listen to. The big bulk of the retail sales are radiophone receiving apparatus and there must be some real

stimulus in the way of broadcasting material to make the public want to listen.

The fall should see a decided change in the radio business. When cold winds wind up outdoor sports the radio fan will begin to dust off his receiving set and begin his nightly vigil at the receivers. Then look out for more busi-

ness. By this time the outsiders such as the drug stores will be pretty well fed up on radio and will be out of it. The industry should by this time be purged of the unscrupulous manufacturer and the retailing should be in the hands of those who should be taking care of it, the electragists. So buck everybody! Times will soon be better!

Motor Campers Offer Opportunities for Radio Sales

Dealers in Localities Where Motorboating is Popular Can Boost Up the Summer Sales Curve by Covering This Field

There is no electrical dealer who is not close to either or both classes of recreation seekers, one traveling by motor car over the land and the other traveling by motorboat on the water. Many automobilists already have radio outfits in their homes but most of these are too large and bulky to be conveniently carried in the car along with the other luggage that forms a part of every such excursion. There is therefore a splendid opportunity to the dealer to get in touch with all automobile owners in his territory by mail offering suggestions for portable outfits that will increase the pleasure of automobile camping.

If part of the owner's equipment is already suitable for such use, there is the chance to sell other equipment to with it such as special antenna equipment because very few owners would care to go to all the work of dismantling their antenna for the sake of a week or so.

Motor boat owners should be splendid prospects for the sale of receiving sets on account of their natural isolation from most sources of information. Anchored in the bay for the night they can hear the baseball scores, know how their stocks are holding up and listen to the musical programs and other forms of entertainment as the fish are biting or as the supper is cooking up in the galley.

The gross amount of each sale of radio equipment is not large enough to warrant personal salesmanship of calling in most cases and a good deal of this business could be done by mail or even over the telephone.

Letters Will Get Business

It is possible to buy from listing companies the names of automobile owners in various territories and these names can be circulated with catalogs,

circulars and with well written letters. It is best to take each class and try to apply the selling talk in the letter directly to the prospect. Here are a couple of letters that may suggest a style that will bring in orders:

Dear sir:

Many automobile owners will spend from one to three weeks camping this summer. Perhaps you have thought of doing the same thing. It may or may not be news to you to know that there are nearly 2,000 motor camps scattered over the United States, most of these established by states or municipalities and reserved for your use. They have sanitary conveniences, water, provisions and other comforts.

In selecting the equipment to take a camping trip, why not consider the pleasure and convenience of taking a small radiophone receiving set along. It will occupy little space in your car and the antenna can be thrown over the limb of a tree in a few minutes and you are all set to get the day's news and the entertainment provided by the broadcasting stations. Sets sell for as little as \$12. May we have the pleasure of demonstrating how much a radiophone will increase the pleasure of your vacation?

Yours very truly,

Here is one that might go well with owners of motorboats. You have to talk a little differently to them and make it taste of the salt air and the bilgewater:

Dear sir:

One of the greatest pleasures of motorboating is the ability to get away from the rest of the world where messenger boys and special delivery letters cannot reach you. But isn't it a mighty nice thing to combine these ad-

vantages with the ability to know what is going on in the rest of the world?

A radiophone receiving set on your motorboat will help enliven the evenings and you can even listen to John McCormick as the weakfish nibble at the bait. Wonderful. The installation of a radio receiving set on a boat is very simple and inexpensive and will add much to your pleasure trips whether they are merely over the week ends or whether you go on more extended cruises. May we have the opportunity to demonstrate how easily the installation is made? Sets may be had for as low as \$12.

Yours very truly,

Owners' Names Available

It is now possible to secure the names of all motorboat owners as under the Federal Income tax regulations every motorboat has to be registered and has to carry a number much as automobiles are licensed by the states. Listing companies can supply these names for various sections and these lists will provide a profitable list of prospects for your radio equipment.

The motor camp is very familiar in the middle west and is just beginning to creep toward the east. The motor camping movement has grown like Jack's beanstalk and most of the general public is not aware of its existence. The motor camp is playing such a great part in the pleasure and recreation of the great American public because so many families of moderate means own motor cars and they cannot afford the steep prices of the summer resort hotels and must content themselves with short trips in their automobiles. By providing camping places for automobiles various municipalities are making it possible for these trips to be greatly extended

and when they are extended radio receiving apparatus is doing much to while away the evening hours by the fireside or the trout stream.

There is a golden opportunity for the electrical dealer to get busy but he will have to work fast because the summer

is half over. Labor day will see the end of the greater part of the motor camping although many will want to take fall trips, especially over the pleasant week-ends when the leaves turn gold and red and yellow.

Once a radio fan means always a

radio fan and if you can get some of these motor car and motorboat owners interested through the purely pleasure channel you will be able to sell them additional equipment when they go to set the apparatus or more elaborate apparatus up in their homes.

Radio Tells How to Do It Electrically

BY LUISE C. READ

Member of Society for Electrical Development Staff
Broadcasts Message to Housewives From Newark, N. J.

[NOTE—This message was listened to by several members from National Headquarters' office who were entertained at the receiving station of the Radio Guild in New York City. The equipment used included an inside loop aerial through which the charming voice of the speaker was clearly heard in a most natural and unaffected tone even though it came from so great a distance and at a time when much was going on through the ether.—The Editor.]

I have a message for women but I want all the men to listen. Of course it can't be done if you have only one pair of receivers. Those of you who have loud speakers or amplifiers should call all the family. Now are you ready?

Do you know that if you are cheerful until ten o'clock in the morning, the rest of the day will take care of itself?

I will give you a prescription for early morning cheer that will start the day aright. It may be impossible to have the prescription filled until after ten tomorrow but it will brighten other days to come.

This marvelous prescription is:

Do It Electrically

Electricity is the greatest of public servants, it is the magic power that has reclaimed our deserts and left them fields in flower—it operates our trains—lifts and lowers our elevators—lights our streets and our homes, and performs countless other tasks for us and last, but very important to every woman, it lifts the *work* out of *housework* and makes housekeeping a pleasure.

Breakfast is usually a woman's first task in the morning. For the preparation of your breakfast I will prescribe the dainty electric table appliances. These appliances are an ornament to your table and are quite as useful as ornamental. The electric coffee per-

colator just loves to make delicious coffee—the toaster turns out toast so crisp and brown that it makes one long for breakfast to even think of it.

While the coffee percs and the toaster toasts your electric grill will do the eggs and bacon to a turn—and presto—breakfast is ready without any running back and forth to the kitchen.



The Little Lady Herself is Here Shown
Telling the World to Do It Electrically

Breakfast if cooked electrically will be serene and your day will be started right.

After Breakfast

After breakfast—your man has gone and Betty and Jack have raced off to school—then comes the heavy thought—*dishes*. Dishwashing takes more joy out of life than any other household task. Your lovely hands are a bit rough perhaps, and you are thinking of a new hand cream. If you promise that you won't tell, I'll tell you a secret. It's just between you and me and WJZ. The makers of cosmetics

must never hear of it for if they did I should be in a terrible fix. I shall now give you this secret prescription for smooth, velvety hands—an *electric dishwasher*.

The electric dishwasher is simplicity itself to use. Scrape your dishes and stack them in the wire racks, turn on the electric current and the hot soapy water will spray them powerfully—after rinsing let them stand for a few minutes and they will be ready to put away in the china closet. No messy dish cloths or towels—your dishes washed electrically and absolutely sanitary. The ultra modern housekeeper only washes dishes once a day—after breakfast each morning when the dishes from luncheon and dinner the day before are washed with the morning's breakfast dishes. The electric dishwasher has a sanitary well ventilated space in which to stack the dishes before washing, so that no woman need consider herself untidy because she washes dishes only once a day.

After putting away the dishes you will want to tidy your living rooms but "Sweep No More My Lady—Oh Sweep No More I Pray."

The next line of the prescription reads—electric vacuum cleaner. How long, oh how long have women been willing to sweep and clean in the old-fashioned way? Why raise clouds of dust from rugs only to let it rest upon books and pictures and draperies and the put it into circulation again with a duster?

House Cleaning Now a Pleasure

Sweeping day meant dragging rugs into the back yard—moving the furniture—turning the house topsy turvy. And when cleaning was over mother was too tired to care whether her house was clean or not. Then it was the old story

DUDLEY RADIO PRODUCTS

"QUALITY AND DEPENDABILITY GUARANTEED"

The Time Has Arrived

The toy period of radiophony is passed and the buying public demands quality and dependability in its radio equipment. Unlike other mushroom businesses, radio apparatus is more or less a public property. By this we mean that practically all the patents have expired, giving those who know very little, if anything, about radiophony, an opportunity to place on the market, radio products that are made as cheap as possible and sold at the highest prices, with no thought of giving the recipient a square deal. There are in the United States at the present time 17,500 firms who are manufacturing one or more radio products. It is safe to say that out of this number, only a small percentage have had radio experience.

The engineering department of the Dudley-Vought Corporation is under the direction of our Vice President, E. P. Allard, formerly with the General Electric Company; Westinghouse Electric & Manufacturing Company; and the Q. M. C., U. S. Army. The executive department is being directed by W. R. Dudley, formerly of the 212th Field Signal Battalion of the U. S. Army.

It is the policy of the Dudley-Vought Corporation to market

DUDLEY RADIO PRODUCTS

through those who should rightfully distribute radio products. We believe that the qualified distributor is the electragist, not the confectionery store, the book store or the baker and the like who are now handling radio products.

Remember also, that the Dudley-Vought Corporation is standing behind you at all times and no sale is complete until your customer is satisfied in every way. Our proposition to you is exclusive and equitable. And we will be pleased to furnish particulars, upon application from you. Either write on your letterhead or enclose your business card, as this information is for select electragists.

DUDLEY-VOUGHT CORPORATION

DEPARTMENT R. E.

17-19-21-23 So. 52nd Street,
PHILADELPHIA, PA.

DUDLEY RADIO PRODUCTS

"QUALITY AND DEPENDABILITY GUARANTEED"

NATIONAL ELECTRAGIST

—when her husband came home she was hopelessly tired, unable to smile or make the evening pleasant. How often a cleaning day has ended in a quarrel—the wife worn to a frazzle after a day of sweeping and dusting and the husband possibly a bit ruffled from what he says has been a tedious office day. He can't eliminate the office troubles so easily but the choking dust and physical exhaustion can be done away with by doing the house cleaning electrically.

With the electric vacuum cleaner the task of sweeping is done away with. In the first place the cleaning is done so thoroughly that it does not have to be done so often and furthermore the electric cleaner not only cleans rugs but furniture. Draperies, books and pictures may be dusted and freed from dirt by using the attachments which are supplied with every well known cleaner.

To look at the old methods of house-cleaning from a purely hygienic standpoint is enough to make one shudder. The germ laden dust brought in from the streets is a terrible menace to our health and the old broom just lifts it from the rugs and sends it flying into our throats, infecting the delicate membranes and often bringing about serious complications. The dust proof bag of the electric vacuum cleaner swallows all the dust and removes the ever present danger from at least one phase of our house cleaning.

The steps I took with thee old broom

*Are as a swirl of dust to me
I count them over as I cross
the room*

My slavery—my slavery.

Don't be slaves of the broom!

The most annoying problem is that of the family washing. The laundress fails to appear at the last moment or the laundry has lost your pet damask cloth or—well it is always something. It is always well to be considerate of your laundress, however, as this little story will prove:

Little Billie was laid up with scarlet fever so his mother decided that it would be well not to send out the family laundry in order to prevent contagion—so when Mandy came for the laundry on Monday morning she said to her, "Mandy, I am not going to give you the wash for a while because Billie has scarlet fever and I am afraid that your children may get it if you take the soiled clothes home." "Mandy immediately spoke up, "Oh, dat a'right,

ma'am, ma chilluns done hab scarlet fever for a whole month now."

Having the laundry done at home under your supervision is the most sanitary and economical way of providing your family with the necessary fresh linen. Washed by hand over the washboard, it is an endless back breaking job, and the wear and tear on the delicate fabrics is another bad feature. Attach your slave electricity to an electric washing machine and have your laundry done in a thoroughly efficient manner. Whether you do it yourself or have your maid or laundress do it the time and energy saved, the wear and tear on your clothes, all mean much in these days of high wages and high clothing prices.

You are all familiar with the electric iron—the fact that there are a million electric irons in use in this country proves that. A few years ago the 6 pound iron was considered a luxury but today we find in the average home not only the 6 pounder, but the slender little 3 pound electric iron which does the tiny things so beautifully and makes such a useful traveling companion.

Electric Ironing

An electric ironer is another great addition to your electrical family. Sitting at ease before it you may iron sheets, table cloths, curtains, and other linens. Few and very fussy are the pieces the electric ironer will not handle. Rompers, middies, nighties, shirts and collars, in fact 90 percent of the family washing can be done by the electric ironing machine. So much for our washing and ironing.

Let's peep into the kitchen and see what electrical servants can be found. The electric range is indeed a joy. The even brown of electrically cooked food is proof of the reliability of electric heat. The shrinkage in electrically cooked food is 20 percent less than when it is cooked otherwise, so naturally it is so much more nutritive. This saving in food alone will in time pay for your range.

There is no soot or smoke to blacken your bright aluminum pots and pans—no noxious fumes to poison the air. The walls of your kitchen and pantry which otherwise would have to be done over once or twice a year will retain their fresh blues and white when you cook electrically, because of the absence of smoke and soot. These are always present in every other form of cooking and the result is a greasy black film which ruins walls and curtains and takes untold hours of labor to remove.

The heat is so well insulated that even on these hot summer days your kitchen is cool and comfortable.

There are countless electric specialties on the market which simplify and even eliminate many daily tasks. Foremost among them is the kitchen motor which beats eggs—whips cream—makes mayonnaise—freezes ice cream—sharpens knives, etc. There is the electric refrigerator—it is many degrees colder than an ordinary ice box. There is no ice to melt, no messy drain pipe to keep clean. All moisture is condensed into frost so that the air is quite dry and the food is kept fresh so much longer.

The Beautifiers

There are so many other electrical appliances that I would like to tell you about, but time is short. I must just mention the electric beautifiers. The electric curling iron—the vibrator—the violet ray—all work marvels in healthful beautifying. The electric sewing machine holds a place all its own. It is one of the most popular of the electrical devices—they may be had in every familiar type. No fatigue, no physical strain accompanies the use of an electric sewing machine.

The old adage that a woman's work is never done does not fit the home that is electrically equipped and properly managed. Aside from the convenience of electric service and appliances the actual time saved by their use is most important. For those of us who attend to our household tasks alone, time saved from housework means more leisure hours for the more beautiful things of life that we all long for. Music and literature and civic duties. The welfare work in even the smaller communities is of great consequence and it's the woman's hand that must guide it in the right direction. There are so many questions of national interest that we women must help decide. To do this we must have time.

Let me give you an idea of how much time the use of even a few electric servants will save for you. Based on a working day of 8 hours, it is estimated that in an electrically equipped household you will be able to save 84½ working days in the course of a year.

Keeping Uptodate

Modern women would be indignant if they were asked to wear a gown or hat designed in 1900, but still many of them are keeping house as grandmother did in 1890. Our men are not satisfied to use antiquated methods in

"Circleteed is  Guaranteed"

SWITCHES FOR RADIO WORK

Battery Switches

PORCELAIN BASE

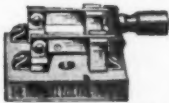
Cat. No.	STYLE	Carton	Std. Pkg.	Gross Wt. S.P.	Price Each	Size Base Wide Long
707	S. P. S. T.	10	150	48 lbs.	\$0.20	1 1/4 x 3 1/4
708	S. P. D. T.	5	100	45 "	.32	1 1/4 x 3 1/4
709	D. P. S. T.	10	100	50 "	.75	2 x 2 1/2
710	D. P. D. T.	5	50	46 "	.50	2 1/4 x 3 1/4
711	3 P. S. T.	5	50	45 "	.56	3 1/4 x 2 1/2
712	3 P. D. T.	5	50	67 "	.90	3 1/4 x 3 1/4



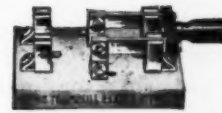
CAT. NO. 707
S. P. S. T.



CAT. NO. 708
S. P. D. T.



CAT. NO. 709
D. P. S. T.



CAT. NO. 710
D. P. D. T.

FIBRE BASE

25 AMP. WITH HARD RUBBER PISTOL GRIP HANDLE

Cat. No.	STYLE	Carton	Std. Pkg.	Gross Wt. St. Pkg.	Price Each
7	S. P. S. T.	20	200	36 lbs.	\$0.22
8	S. P. D. T.	10	100	30 "	.34
9	D. P. S. T.	10	100	41 "	.42
10	D. P. D. T.	10	50	36 "	.80
40	3 P. S. T.	10	50	35 "	.75
41	3 P. D. T.	10	25	20 "	1.25
42	4 P. S. T.	10	25	20 "	1.10
43	4 P. D. T.	10	10	10 "	1.75

25 AMP. Handle with Black Enamel Tip

Cat. No.	STYLE	Carton	Std. Pkg.	Gross Wt. Std. P.	Price Each
11	S. P. S. T.	20	200	34 lbs.	\$0.20
13	S. P. D. T.	10	100	29 "	.32



CAT. NO. 7
S. P. S. T.



CAT. NO. 8
S. P. D. T.

Discounts—TRUMBULL SCHEDULE B

GROUND SWITCHES

PORCELAIN BASE

No. 8747 List \$2.00
On porcelain base.



CAT. No. 8747

ASBESTOS WOOD BASE

No. 8727 List \$2.65
Nos. 8747 and 8727 have 1 1/4 in. periphery of blade, 5 in. Break Exceeding Underwriter's requirements of 3/4 in. periphery.



CAT. No. 8727
1 1/4 in. Periphery of Blade
5 in. Break

No. 8729 List \$3.15
2 1/4 in. Periphery of Blade
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CAT. No. 8729
2 1/4 in. Periphery of Blade
5 in. Break

For use when especially heavy material is desired.
100 Amp. stock.

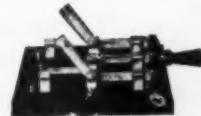
ANTENNA SWITCH

30 Amp. Slate Base

3 P. D. T. Angle Blades

Used in receiving and sending wireless messages.

Receive on D. P. Send on 3 P.
On Slate Base 7 in. x 8 in. x 3/4 in.
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their offices, factories or other places of business. The great electric servant is harnessed to everything. I am satisfied that if the men had to do the housekeeping for one month—our homes would be electrically equipped.

One clever young husband says that everybody know what a life saving station is and considers it important. Why not a Wife Saving Station? I would like to ask the men who are listening to make their homes Wife Saving Stations by equipping them with electrical appliances.

And of my women listeners, I will beg that they save themselves for the happy companionship of husband, children and friends. Learn to play and keep apace with the times—don't turn down your husband's invitation to dine in town and to the theatres because you are tired. Let electricity take the *work* out of *housework* for you. Let it keep the wrinkles from your face—your hands smooth and your spirit young.

The scientist, inventor, and the engineer together with the financial geniuses of our land have made these modern agencies possible. It is up to the woman to apply them in her business of home keeping.

The liberator is at your doors. Open them and welcome it in and pledge yourselves to Do It Electrically instead of physically.

Congress Has Radio Bill

Legislation dealing with the broadcasting of news and entertainment will be considered by Congress in the fall. Representative Wallace White will be sponsor for the White-Kellog bill which will embody the principles brought out at the Hoover conference held in Washington some time ago. This bill assures to the amateur the free use of the air on the same wave lengths he is now using and gives him additional wave lengths. The broadcasting of weather, market, shipping and other news is given its own wave length so that farmers and shipping will continue to receive the government's broadcasting along these lines. Other wave lengths are assigned to the Navy and War Departments, for commercial airplanes, for international communication, for commercial wireless telegraph and telephone companies, and for investigation work.

Certain wave lengths will be assured to manufacturers, dealers and others

who are broadcasting entertainment. The large majority of receiving sets that are purchased and made by amateurs are for the purpose of receiving these concerts and entertainments and one of the most important things therefore is to safeguard their interests.

Pageant Features Radio

The city of Chicago expects to spread broadcast the oratorical and musical features that will mark the Pageant of Progress begun in the Illinois metropolis July 29th to last until August 14th. To assure perfect acoustic accommodations for the thousands who will gather in and about the municipal pier during the festivities, George E. Carlson, Commissioner of Electricity, has purchased the greatest public address system ever sold by the Western Electric Company.

A remarkable degree of amplification is possible with the apparatus. Although the Chicago municipal pier, the scene of the exposition, covers an area of 3,000 by 300 feet, the engineers expect little trouble in carrying the vocal entertainment to the most distant corner of the structure. They even promise to feature the nights by hurling the speeches

and music out over the waters of Lake Michigan.

During the intervals in the regular pageant program it has been arranged to connect the public address system with a radio telephone receiving set capable of picking up messages from most of the Mid-West transmitting stations.

Radio Craze in Cuba

According to Consul Harold D. Clum of Santiago, Cuba, there is an increasing interest in that city in radio telegraphy and telephony, and it is intended to install a broadcasting station powerful enough to be heard in every town in Oriente Province.

The majority of receiving stations now in use have been constructed by amateurs or assembled from parts obtained from the United States, but as American firms are oversold, much difficulty has been experienced in getting deliveries on orders placed in this country.

The proximity of Cuba to the broadcasting facilities of the United States adds to the possibilities for developing a market there for radio sets.



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Standard Test Outlined for Receiving Sets

Bureau of Standards and Department of Commerce Sponsor Movement for Approved Method

The Bureau of Standards of the Department of Commerce and the Electrical Testing Laboratories of New York have approved in outline a method for immediate use in the testing of complete receiving sets manufactured for receiving radio telephone broadcast reception. Improvements on these methods, or new methods used in testing the equipment submitted by the National Retail Dry Goods Association, will be subject to approval of the Bureau of Standards, which will cooperate with the Electrical Testing Laboratories in the establishment of these methods as standard procedure.

It is recognized that there are a great many other organizations which would be interested in, and benefited by, any action leading toward the making of performance tests and the standardization of radio equipment, and it is desirable that the interest in this work be coordinated as thoroughly as possible.

The following outline was drawn up and agreed upon as a suggested method for immediate use in testing of complete receiving sets manufactured for use in receiving radio telephone broadcast reception. As methods are developed which are more refined and which give more specific and quantitative information on the electrical design and operation of the apparatus, these will be applied to the best advantage.

Proposed Schedule for Testing Radio Receiving Sets

It is proposed to report on all sets submitted for test in accordance with the following schedule as nearly as practicable. The design, construction and operation of each unit as well as the complete set will be studied and the report given will be based on actual performance and endurance tests as well as a critical examination. Where numerical values cannot be obtained, the comparative merits of any unit will be rated as "good," "medium," or "poor."

A. General Observations

Mechanical and Electrical Design

- a. General exterior appearance.
 - (1) General symmetry.
 - (2) Convenience of design.
 - (3) Workmanship.
- b. General interior appearance.
 - (1) Wiring.
Size and kind of wire used for connections.
Method of wiring—

Loose or self supporting.
Covered or bare wire.
Method of making connections—
Soldered connections.
Connection lugs or terminals.
Washers.
Workmanship.

- (2) Mechanical design and construction of supports for coils, condensers, etc.

- c. Photographs showing interior and exterior views of set and also any interesting units.

d. Cabinet.

- (1) Size.
- (2) Material—
Solid or veneered.
Kind—wood, metal or special composition.
- (3) Construction—
Nailed, screwed, glued or jointed.
- (4) Covered or uncovered.
- (5) Finish—
Stain, paint, varnish or special covering.
Workmanship.
Appearance.

e. Panel—

- (1) Size.
- (2) Material—
Wood, fiber, or special composition.
- (3) Finish—
Workmanship— edges and surface.
Glossy or dull.
Appearance.

f. Provisions for making connections—

- (1) Number of and connections required to place set in operation.
- (2) Simplicity of making connections.
Location, number of arrangement of binding posts.
- (3) Binding posts—
Type—design and construction.
Removable—non-removable top.
Small—medium—large.
Metal or composition.
Effectiveness of binding posts.

g. Tuning arrangement—

- (1) Method of tuning—circuits used.
Single circuit.
Two circuit.
Three circuit.
Inductors used.
Condensers used.
- (2) Mechanical design and construction of apparatus—
 - (a) Inductors—
 1. Windings—
Dimensions.
Number of taps.
Varnished, impregnated, etc.
Condition of windings.
 2. Auxiliary parts—
Coil supports, clamps, etc.
Rotor shafts, bushings, lead-in wires.
 - (b) Condensers—variable or fixed—
Size and number of plates.
Method of supporting.
Insulation used.
Bushings and bearings.
 - (c) Tuning controls—
 1. Simplicity of adjustment.
Number of controls.
Convenience of control.
 2. Design and construction of knobs.

Dials.
Switch levers and knobs.
Switch contacts.
Other parts.

h. Detector—

- (1) Type—
Crystal or electron tube.
- (2) Design and construction—
Crystal detector type.
Kind of crystal.
Method of mounting crystal.
Method of adjusting.
Ease of adjustment.
Ruggedness of adjustment.
Electron tube type—
Type of tube to be used with set.
Rheostat.
Electron tube socket.
- (3) Electrical properties sensitivity.

i. Diagram of connections of complete set.

B. Performance Tests

A comparison against a "laboratory standard receiving set" will be made under actual working conditions.

a. Sensitivity. Audibility measurements on received radio telephone service will be made on the receiving set under test in comparison with laboratory standard receiving set when both are tuned to receive signals from a given radio telephone transmitting station. The "performance rating" will then be given as the ratio (expressed in percent) of the audibility reading of the test set to the reading of the standard. A "Constant impedance" audibility meter will be used in the telephone receiver circuit. In developing this test method, several types of radiophone transmitting services will be received and the audibility readings recorded in each case. Later a satisfactory average type of transmission may be agreed upon.

b. Sharpness of Tuning. Observations will be made of the region from which signals from the given transmitting station can be heard. The best way of expressing this "region" will be developed.

c. Quality. The quality of music or speech received will be rated as good, medium, or poor, together with a statement of the transmitting conditions existing during the time of the test and other facts observed such as those given below:

Transmitting conditions—

Subject—
Male or female voice.
Vocal or instrumental.
Solo or company.

Interference—

Atmospheric.
Station.
Other facts observed—
Rattles.

Distortion—

High vs. low notes.
"Mushy" speech.
Pure tones vs. chords.

d. Wave length range. Measurement will be made of the wave length to which the receiving set tunes, using a dummy antenna equivalent to a single wire 30' high and 75' long.

C. Endurance Tests

a. Vibration test. Set will be clamped on a "vibration table" and notes made when various parts become loose.

b. Humidity Test. Set will be placed in a humid atmosphere and the effect noted.

This is understood to be an outline drawn up with the desire for securing immediate results. Additions and improvements will be made in the methods by consultation and agreement.

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No tools necessary to connect

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to buy or sell special electrical equip-

ment, consult the MARKET PLACE

of the NATIONAL ELECTRAGIST.

Radio at Convention

Minnesota Electrical Contractors and Dealers Have Meeting Where Art Is Enjoyed

The annual mid-summer meeting of the Minnesota Association was declared by everyone to be the most successful held, not entirely from a point of attendance but from the character of the meeting.

It was held at the country home of the St. Paul Automobile Club at White Bear Lake and a more desirable spot is hard to find. A splendid luncheon was served at 12:30, after which everyone repaired to the convention hall in shirt sleeves ready for any business that might come up. Ordinarily very little business is transacted at our mid-summer conventions, such meetings being usually given over to an exchange of ideas and listening to prominent speakers. The afternoon session, however, was devoted to discussion of the proposed changes in the National Constitution and By-laws with the result that delegates who will attend the National Convention in Cincinnati were instructed to favor the revised items.

Feeling that the National name would surely be changed, it was voted to change the name of the Minnesota State Association of Electrical Contractors and Dealers to the Minnesota Association of Electragists. Another motion was also made and carried to the effect that a committee be appointed by the State Chairman to design an emblem bearing the new name of the association and suitable for insertion in all advertisements of members, their stationery, etc. This committee has been appointed and their efforts should result in bringing the attention of the public more than ever to our organization.

The meeting adjourned at 4 p. m. and the warm room was quickly emptied, some going for a swim, some for the horseshoe courts, and others for the one and only pool table.

At six-thirty the air was filled with music from the powerful radio receiving station installed for the occasion and everyone found their places at the dinner tables, comfortably placed on the screened veranda of the Clubhouse.

Following the dinner State Chairman John M. Roberts of St. Paul called the evening session to order with the State Secretary Arthur P. Peterson as the first speaker of the evening. Mr. Peterson gave a talk on the "How and Why of Radio" which was well received.

J. L. Wolf, National Secretary of

the Electrical Dealers' Society of America was next introduced and gave an excellent talk on three or four activities being carried on by national and local groups. He touched upon the Committee for Business Development fostered by the N. E. L. A., the work of the Cleveland Electrical League in successfully conducting several electrical homes, the Fixture Dealers' Society and the problems of the Lighting Fixture Dealer. Mr. Wolf distributed several booklets on fixture work among those present and aroused considerable interest in fixture cost data. His visit was made possible by the interest taken by electrical fixture men in the Twin Cities.

The next speaker on the program was Laurence W. Davis, field representative of the National Association. "Larry" gave one of his characteristic talks and presented the subject of "Overhead, or the Cost of Doing Business" so emphatically and clearly that everyone, regardless of the length of time in the business, left the meeting with a much better idea of that difficult subject. He spoke briefly of the necessity of watching turnover and pointed out several common fallacies in connection with this ever present problem. Everyone who heard him voiced a desire that he might be present at our gatherings far more frequently to guide us in the proper methods of handling a business.

Before the meeting adjourned, Mr. Edelstein of the Northern States Power Company's St. Paul office, said a few

words on the need of salesmanship in our business. He pointed out the fact that entirely too little attention was given to selling our services and our merchandise. And what he said was true. The average contractor of today talks price too much and quality and service too little.

And then—the purr of motors and the flashing of lights along the road told that the meeting was over.

Radio and the Telephone

"Conversations over the ordinary telephone are not heard on the wireless receiving set when 'phone wires are used for antennae, nor are the wireless messages detected on the telephone, so there is no interference or interruption of telephone or radio service," said Dean H. V. Carpenter of the college of engineering of Washington State College.

This is probably the biggest step yet taken in the popularizing of the radio, for it eliminates the most difficult feature of the receiving station. In cities where there are many chimneys, or in the neighborhood of tall trees, it is often difficult to string radio wires where there will not be interference.

"Details of the method recently announced for using telephone service wires as antennae for wireless messages are now available," continued Dean Carpenter. "The system of connections consists simply in connecting two mica condensers of very small capacity in



Church Chimes Are Broadcasted From Thomas J. Williams' Store in Washington, D. C. As This Progressive Electragist Has Radio Shop in Close Proximity to Edifice, Music Therefrom Can be Easily Transmitted

series across the telephone service wires, and attaching the wireless receiving set to the middle point between the condensers. This balances out the ordinary voice currents, and acts as a frequency filter, permitting only the radio frequency waves to reach the wireless equipment.

"Permission to use this must be secured from the telephone company, but its application will cause no interference whatever with the telephone service. It is, in fact, quite impossible to tell by telephone test when the radio messages are going over the wires. One using the radio can hear the telephone call bell and the click of connection, but no message, so there is little interruption there.

"It probably can not be made to work successfully so far as simultaneous use of the ordinary telephone and the wireless is concerned on farmers' grounded lines. On city lines, however, the two services can be used simultaneously with absolutely no disturbance to the wire; only the noises of switching and ringing are heard on the wireless 'phone, and

these would not make any serious interruption."

Turkish Radio Fans

The Department of Commerce is advised by Trade Commissioner Gillespie that the president of the Allied Police Commission at Constantinople has published a notice prohibiting the sale of wireless apparatus in Constantinople and in the zone of Allied military occupation. The notice permits the sale of wireless apparatus outside of the zone occupied by the Allies, but requires firms wishing to make such a sale to obtain permission from Headquarters, Allied Police Commission, Constantinople, before making delivery of the goods giving the name and full particulars concerning the buyer and of the destination of their apparatus.

Book Review

Amateur Radio. By Maurice J. Grainger. Published by the James A. McCann Co., 188 West Fourth Street, New York City. Over 150 pages, many

diagrams, maps and illustrations. Price, 50 cents, paper back; \$1.00 cloth.

The book starts at the very beginning of radio theory and explains in non-technical language the whys and the wherefores of transmission and reception. There are hook ups from the simplest crystal set to the four step amplifier, thus covering practically the complete range of instruments used by the amateur. The author is a radio expert formerly with the Westinghouse Electric & Manufacturing Company, and the United States Navy.

Radio Helps Music

That the broadcasting of good music by radiophone is doing much toward a better appreciation of music is the conviction of many musicians. The better class of motion picture houses with their orchestras and splendid pipe organs were the first to bring good music to the general public and radio is following closely and getting people who ordinarily would not attend fine concerts to listen to the world's greatest masters.

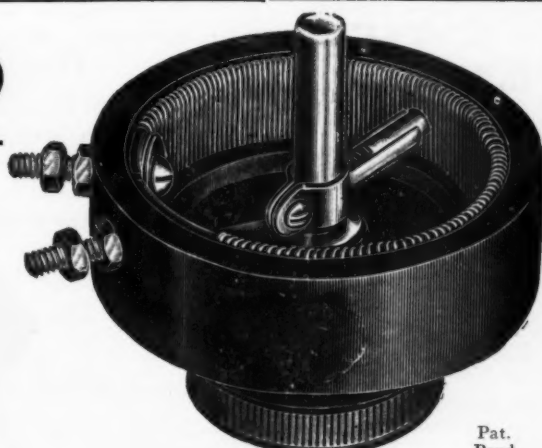
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LIST **PLUG** \$1.25



This plug is made to fit all styles of phone clips and so constructed as to fit all jacks now on the market. The casing is made of pure condensite, making it practically unbreakable.



RHEOSTAT
LIST ----- \$1.25

This photo shows the rheostat so you can see the spring hammer forced against winding giving a positive and continuous contact. The spring hammer is enclosed in a tube, making it perfectly compact. The rheostat is especially adapted to panel or table mounting. Its workmanship and construction are of unsurpassed quality.

DIALS

LIST 3-in. --- \$1.00
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The dial being of pure condensite makes a positive insulation, and also will stand up under rough usage. The back has sufficient offset to allow free revolutions without scraping the panels.

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equal to that of the vacuum tube amplifier, into the plate circuit to which the horn is connected. When connected to



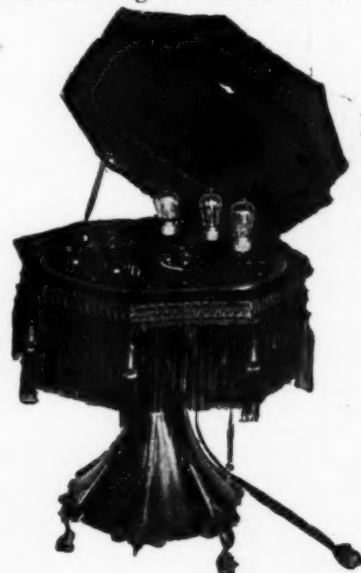
a third stage of amplification operating on 100 volts or over, the volume of sound is great enough to be easily heard in a room seating five hundred people. For smaller rooms, such as in private houses good results are obtained from the Audiophone when connected with a two stage amplifier.

One watt is required by the Audiophone to give full volume, therefore, the amplifier must be so designed to have a high voltage in at least the last stage or better still to operate with high voltage on all tubes.

The Audiophone can also be used in connection with the special phonograph record Transmitter and Control Box, for amplification of the voice or on phonograph records. This Transmitter and Control Box will soon be placed upon the market, thus affording a double use for the Audiophone. It can be readily applied to any style of phonograph to electrically reproduce from the record the music, voices, etc., which was used in making the original master record.

The Radio Phonolier

The Capitol Phonolier Corp., 54-60 Lafayette Street, New York City has brought out a combination table lamp and complete receiving set combining tuner, detector, two-stage amplifier and loud speaker. Due to an "all-wave" coupler the range of the receiving set is from 150 to 3,000 meters



without any extra loading coils. The instrument is of solid copper finished in bronze, silver or gold and with lamp shades of combinations to match or contrast with existing interior decorations. The base of the lamp is the loud speaker, containing an inner horn. The prices vary from \$300 to \$400 without tubes or batteries. \$75 extra for tubes and batteries.

Bristol Audiophone or Loud Speaker

The Bristol Company of Waterbury, Conn., has recently placed on the market a loud speaker horn under the trade mark name Audiophone for receiving radio concerts, speeches, etc. The Audiophone is the result of research work carried out to develop a loud speaker for use with the new Bristol Talking Moving Pictures, which are soon to be placed before the public. The result of this research produced a loud speaker which gives a large volume of amplified sound, and yet faithfully reproduces the original.

The Audiophone is of a compact and artistic design finished in bronze. The bell of the horn is 15 inches in diameter. It requires no separate storage battery for magnetizing current. In order to make the horn suitable for all types of radio amplifier circuits, a transformer is mounted in the base which provides the impedance about

The Radio Guild

Manufacturers of the
"Vox Humana"

the receiver with
the living voice

announces the publication of the only authentic booklet on the new Armstrong Super-regenerative Receiver—explaining accurately just how to construct and operate it.

Written by Kenneth Harkness, this booklet is fully illustrated with twelve photographs and diagrams of sets actually constructed by the author.

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ready for wiring

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256 West 34th St., New York City

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on RADIO~*

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Everybody is anxious for a good information service on radio. Dr. J. H. Dellinger, Chief of the Radio Laboratory of the U. S. Bureau of Standards and L. E. Whittemore, Alternate Chief, with the unlimited resources of the Government at their command, have produced the

Lefax LOOSE-LEAF FACTS **RADIO HANDBOOK**

to supply this need. Lefax covers every phase of Modern Radio; aerial construction, lightning protection, exact function of each piece of apparatus, actual practice of all types of sets—technically correct in everyday language.

Lefax *never grows old*. New events and developments will be covered as fast as they happen on new pages sent free to every owner up to July 1st, 1923.

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Find out about the Lefax special introductory offer at once. The coupon below is for your convenience.

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Dept. G Ninth and Sansom Sts., Philadelphia

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Philadelphia, Pa.

Send me by return mail your Broad-side for radio dealers, outlining in detail the sales possibilities for Lefax Radio Handbooks, your thirteen million advertising campaign and the profits I can make.

Name.....

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Stern Variable Condenser

A variable condenser has been placed on the market by Stern & Co., 308 Asylum Street, Hartford, Conn. The spacing of the fixed plates has been eliminated by a method of



assembling by means of a milled rail which holds the plates in position. The end plate is made of Bakelite with stops so that the condenser is limited in its travel.

De Veau Silvertone Midget Loud Speaker



The Silvertone Midget made by Stanley & Patterson, West and Hubert Streets, New York City, uses the same receiving unit as is used in the Standard Silvertone and Junior loud speakers. The horn is smaller, however, and is not enclosed with a wood cabinet but is mounted on a substantial metal base which is rubbed to a dead black finish. The price is \$15. Telephone cord and radio plug are included.



Many Old Soldiers Did Not Feel Strong Enough to Parade and Listen to the Patriotic Addresses on Memorial Day. Instead of sitting out Under the Hot Sun for Hours, the Veterans With Radio Sets Sat at Ease in a Shady Place and With Their Headphones to Their Ears, Picked Out of the Ether the Patriotic Speeches

The New Vox Humana

Vox Humana, Model A, manufactured by the Radio Guild, Inc., 256 West 34th Street, New York City, is especially made for use in the home. It is equipped with two stages of audio frequency and two stages of radio frequency. The cabinet is solid mahogany. Interference is reduced to a minimum through the close adjustment of this unit which also makes for the elimination of the ever present noises produced by static conditions.



Vox Humana, Model B, similar in design to Model A, is constructed to receive over greater distances. This model is particularly adapted for use in hotels, restaurants, theatres, and other public places.

Acme Radio Frequency Transformer

The Acme Apparatus Company, 186 Massachusetts Ave., Cambridge, Mass., has perfected a radio frequency transformer to increase the reception range of weak signals and especially with the use of coil antenna. By using radio frequency transformers, the weak incoming radio energy may be amplified before reaching the detector tube, after which audio frequency can be employed for loud speakers.



The Acme Apparatus Company as transformer and radio engineers and manufacturers have developed a radio frequency transformer, R-2, after months of research work. The problems involved required the time and ability of the whole engineering force before they were satisfied that the best possible transformer had been obtained, and that its performance would in no way affect the reputation of the well-known Acme audio frequency transformer.

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RADIO SERVICE SUPPLEMENT TO THE NATIONAL ELECTRAGIST

PUBLISHED ON THE FIRST OF EVERY MONTH

All Communications Should Be Addressed to
NATIONAL ELECTRAGIST RADIO SERVICE SUPPLEMENT
15 West 37th Street, New York City

Yearly subscriptions to the National Electragnet, which includes The Radio Service Supplement as a part of its regular issue, \$2 a year; Radio Service Supplement bound separately, \$1 a year.

National Electragnet, formerly Electrical Contractor, was established 21 years ago as the official journal of the National Association of Electrical Contractors & Dealers.

Number Four

SEPTEMBER, 1922

Ten Cents a Copy

Give Radio Service

The electragnet who is going to make the big sales this fall is the one who is equipped to give service. The service this year is going to be considerably different this winter than it was last. Last year the big bulk of buyers were first time purchasers. They did not know anything about radio and any old kind of a story would sell almost anything in the store. They will come back this fall with a lot more knowledge. They will want to improve their receiving sets and they will want real information as to how to go about it. And the salesman will not be able to wriggle out of a tight question so easily.

One important part of the service that the dealer can render is to give the intelligent advice that is asked for. There are countless outfits in use which are not giving satisfaction. Some of these are of the homemade variety and some have been assembled by amateurs with little or no experience. However, most of them have given their owners enough of a taste of radio to want more and there is a possibility of selling a great deal of equipment to these owners and in giving these owners satisfaction.

Another part of the service that can and should be rendered is in the repair and maintenance of equipment. Thousands of batteries that were sold last year to owners of tube sets have lain practically idle over the summer and there is nothing that hurts a storage battery like inaction. A fully or partly discharged battery sulphates badly and especially when the level of the electrolyte has been allowed to get below the tops of plates. Where the dealer has the equipment to restore these batteries, he can and should make the necessary restoration at as moderate a cost as is consistent with good business. If the owner is told he will have to have a new battery it will be very discouraging to him and may adversely affect his interest in radio.

Sulphated batteries are brought up to condition by filling with water and then by a slow process of charging at a low rate. Sometimes it is necessary to charge and discharge a battery several times before the sulphate is dissolved. Batteries that have sulphated badly and those which have undergone rough treatment may have to be disassembled, have new plates or separators or have the sediment flushed out. Where the electragnet is not equipped to do this work he should make arrangements with some battery service station to take care of the work. There is no difference between the service on radio batteries and automobile starting and lighting batteries and there are usually

concerns in every town that can take care of automobile batteries.

As the conditioning of badly sulphated batteries may take some time, it is advisable to have users bring their batteries in before the fall for attention. Sell the customer a battery hydrometer, tell him how to use it and assist him in getting the maximum of service and life from his battery.

What the Lightning Did

September will see the last of static interference and thunderstorms and we will have a rest for a while from kill joys who tells us of the dire disasters to be expected when lightning hits the antenna. In spite of the hundreds of thousands of receiving sets installed all over the country, only a bare half dozen cases of lightning damage have been reported and a careful investigation of these has failed to disclose that the antenna was directly or remotely responsible for the damage. In one case only, a defective lightning arrester caused a fire and while it is not possible to definitely state the cause, it is pretty safe to assume that the lightning was going to strike that place anyway and that the comparatively small antenna did not play any part in the attracting of the lightning.

Had we listened to all the insurance underwriters predicted at the beginning of the summer we could well believe that half the country would be consumed by flames caused by lightning before the end of the summer. With fall at hand and about a millionth of a percent of lightning damage reported we can enter our next summer with less fear and trembling.

Some More About Selling

Last month we advanced the belief that more radio equipment could be sold if there were more real selling being done and less of the order taking variety. We are still of the same belief. Only more so.

A number of visits to retail radio establishments have shown very clearly that there is little real selling being done. Customers come in, say they want a crystal or a tube or something, and in the great majority of cases they are not even asked if there is anything else. There has been no case observed where the salesman suggested two crystals or two tubes. Here is a great opportunity to nearly double sales. And yet it is passed by without a murmur.

The automobile equipment jobbers and manufacturers

have instituted a great "Ask-Em-To-Buy" movement and it is bringing results. It could well be imitated in the radio industry and with profit to all.

Strikes and Sales

At the time this is being written there are two big strikes in full swing, the railway shopmen and the coal miners, and any quantity of smaller strikes which are more or less local, and while largely affecting the communities where they are in force, yet affect the whole country less than the major disturbances. The effect of these strikes has been very disastrous to certain lines of business.

With the cessation of regular wages miners and shopmen have had to skimp on the necessities of life and sales of wireless equipment have dropped off in affected districts to almost nothing. Wireless receiving apparatus has been so comparatively low priced that all classes have been able to invest in equipment. With thousands of men already out of work and the prospect of others being turned into enforced idleness through the closing of factories on account of lack of fuel, the immediate future of sales in the mining and railway shop districts is rather disappointing.

However, these districts by no means represent the great bulk of radio buyers and to offset this there may be expected a gradual and reasonable resumption of buying by those not affected by strike conditions with the coming of the cooler summer months.

Large manufacturing plants are at present operating on fuel supplies ranging from a few days to several weeks. The largest plants have a proportionately smaller reserve than the smaller ones and excepting in districts supplied by water power the electric lighting and power companies will soon be unable to supply power to any but essential industries.

It is highly probable that by the time this reaches our readers, solutions of the strike problems will have been found but it will require months and months of full blast coal mining to bring supplies to anything like normal.

Several weeks more of strike conditions will necessarily curtail manufacturing of radio and other electrical equipment and this will offset to some extent the decreased purchasing power of the strike affected districts.

Attracting Fake Stock Sellers

Any successful business is likely to be the means of luring money away from people who desire to make profitable investments. The automobile business has had sad experiences in the notorious Emerson and Page companies and now the radio business is feeling the sting of the wasp. The Better Business Bureau of the City of New York which is affiliated with the Associated Advertising Clubs of the World is investigating a number of these alleged fake stock selling schemes and has already made a report on the International Radio Corporation which is being promoted by Charles Beadon and Associates, the same crew that were brought to the bar in the Page Motors stock scandal. The report is a thorough one and does great credit to the radio industry in general, contradicting statements of fabulous profits to be made. The following quotation from the report is worth reading:

"While the future demand for radio supplies is expected to be considerable, following the summer season dullness, there is no indication that the demand will be abnormal.

Dealers and jobbers have in general adequate stocks on hand and manufacturers already established have caught up with the demand. On dependable trade authority it can be said that today there is no shortage of radio apparatus for amateur use and none is anticipated because factories already in production will be able to fill orders promptly. Literally thousands of new companies have been incorporated in the present year to manufacture radio apparatus.

"No one can predict with any great degree of certainty the extent to which radio enthusiasm on the part of amateurs, or its uses in commerce will stimulate and sustain the demand for apparatus and parts. It is anticipated that progress will take place along broad lines in the distribution of educational and market information—development depending largely on improvements in broadcasting and to some extent on receiving apparatus. It appears that commercial use of radio will be limited and of a kind which may supplement and extend rather than compete with the telegraph and telephone systems.

Patent Smoke

There is a lot of smoke just now over the patent situation in the radio field. And where there is smoke there must be some fire. The most conspicuous battle at present is over the crystal detector patents. Litigation is under way at the present time.

There are several thousands of patents already granted by the patent office on various phases of radio transmission and reception, several thousands more patents pending and more coming in every day. Some of these patents, like the Armstrong circuit are basic and affect the manufacture of many pieces of apparatus. Other patents are entirely unimportant and will never amount to anything. There is bound to be a lot of conflict at this stage of the business and there will be more to come.

It is probably safe to predict that some day there will be some sort of an association of manufacturers of radio equipment by means of which some of the basic patents can be pooled for the interest of all. Several times we have referred to the automobile industry and we will refer to it again because its early growth resembled very much the growth of the radio industry. The same patent storm hovered over the automobile industry for years. Selden, one of the "papas" of the modern automobile, claimed a basic patent on all mechanically propelled vehicles. This patent was upheld by several courts, and manufacturers took licenses out under his patents. The patent was contested by Henry Ford to the highest court which decided that Selden's patent had not been infringed. The Association of Licensed Automobile Manufacturers or A. L. A. M. which had been formed, no longer finding it necessary to pay royalties to Selden, continued the organization under the name of the National Automobile Chamber of Commerce which name it now bears and the member manufacturers have pooled their patents on axles, bearings, etc., so that all may enjoy peace and profit.

The mere granting of a patent by the patent office does not mean that the holder of the patent is secure against infringers. Patents are often set aside by courts and more often still courts have decided that certain alleged infringements do not really infringe the patent because the claims in the patent have not been made broad enough to cover them.

If a patentee has a valid patent and the court decides that someone is really infringing the patent, the patentee can demand an injunction and accounting which means that the infringer is prohibited from further infringing the patent and must account for and pay over profits made while infringing the patent. Not only manufacturers but buyers, sellers and users can also be restrained. In most cases damages can be demanded.

The electrageist buying parts, equipment or material con-

cerning which there is discussion or litigation should demand written protection from the concern he buys it from to protect himself from losses. Any reliable house will grant this protection. For the next couple of years there is bound to be a good deal of this litigation until things get on a more or less settled basis and it behooves the electrical dealer to read the news and to know what is going on in the patent world that he may keep his skirts clear.

Radio Equipment at Station KDKA

By D. G. LITTLE

Radio Engineer of Westinghouse Company Explains Development of Long Range Broadcasting Station and Describes Equipment Used

With the increasing popularity of radio broadcasting a description of station KDKA will be of interest to the general public, a large number of whom are already acquainted with the station through their receiving sets. KDKA opened November 5, 1920, with the broadcasting of the presidential election returns that day. It is therefore believed that this station can claim the honor of being the first radio telephone broadcasting station operating regularly and exclusively for the entertainment and education of the public.

Since December, 1920, daily evening programs have been broadcasted. The programs have been enlarged from time to time to include educational talks by prominent men, sporting returns, concerts from Carnegie Music Hall and other similar places, acts from theatres, and church services Sunday morning and evening with radio chapel Sunday afternoon. In addition to the above, stock and produce market reports from the local produce market and from the New York stock exchange, together with weather reports and relayed time signals from the Arlington Radio Station are being broadcasted.

The power of KDKA was at first relatively small, on the order of 100 watts being delivered to the antenna. In August, 1921, the range of the station was increased by improving the height of the antenna and raising the power output first to 500 watts and subsequently to 1,000 watts.

Special Studio Necessary

In keeping with the growth of the station, a special studio was arranged for the artists and announcer, particular attention being given to the acoustic properties, so that echos, reveration and other disturbances have been largely eliminated. The quality of transmission from this station has been improved at every opportunity by means of the studio, and by improvement in the apparatus. The usual carbon microphone has been replaced by a condenser type transmitter for picking up the sound waves. Resistance coupled amplifiers are employed for increasing the relatively weak output of the pick-up transmitter to a power sufficient to control the radio set.

The natural oscillating frequency of all the units in the pick-up and amplifier system has been placed, so far as possible, outside of the audio frequency range, so that the radio signal is practically a perfect reproduction of the original sound. Special filter circuits are arranged to eliminate generator hum in the power supply to the radio transmitter. As broadcasting becomes less a novelty and more a practical form of entertainment, the high quality of KDKA's programs is being greatly appreciated by the

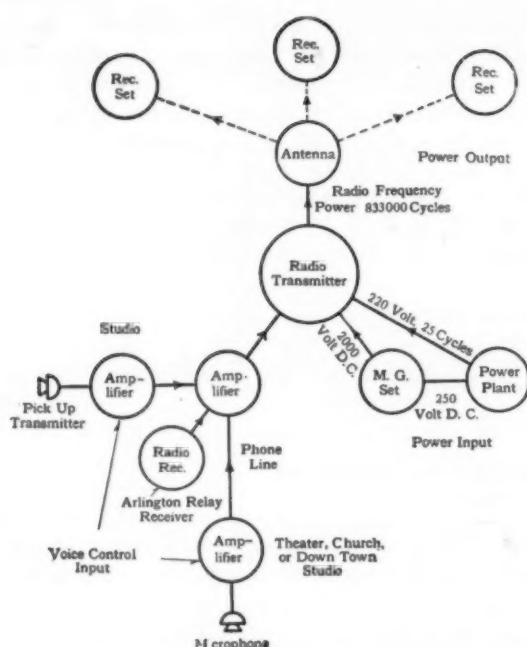
audience. After over a year of operation this audience is very exacting as to the quality of reproduction and arrangement of the programs. It is necessary to secure the very best talent and to keep the radio apparatus in the best possible condition.

The path of the speaker's voice from the studio to the receiving station is shown in diagrammatical form in Fig. 2. The sound wave picked up by the transmitter in the studio, theatre or church is amplified before it is transmitted by means of a telephone line to the radio station, where it is further amplified and used to control the output of the radio transmitter.

The radio transmitting set is supplied with power directly from the work's power plant through a step down transformer for the vacuum tube filaments and through special motor generator sets, which change the 220 volts, direct-current to 2,000 volts direct-current for the tube plates. The radio transmitter changes this power from 2,000 volts direct-current to alternating-current power at a frequency of 833,000 cycles per second (360 meters wave length) which is supplied to the radiating system, consisting of an



Percy Hemus, Baritone, and Gladys Craven, Pianiste, Give Entertaining Selection



Schematic Diagram of the Station Showing Well Planned Layout

antenna and counterpoise. This high frequency power in the antenna system sets up waves in the ether, which travel outward in all direction and, intercepting the receiving antenna, set up voltages and currents which operate the receiving sets.

Wide Variety of Frequency

A general view of the radio transmitter now in use at KDKA is shown in Fig. 3. This set furnishes about one kilowatt high frequency power to the antenna. Fig. 4 shows the circuit diagrams. For convenience in studying the circuits represented by Fig. 4, which carry a wide variety of frequency, this diagram has been divided into four sections by means of the dotted lines at the right. The lower section, which may be considered as the power supply, carries only direct current at 2,000 volts and low-voltage alternating current at 25 cycles. This 25 cycle current is used only for heating the filaments. To prevent any of the 25 cycle current being superimposed on the grid-filament and plate filament circuit, the return of the grid circuits and the 2,000 volt circuit is connected to the mid point of a resistor, which is shunted across the filament, each half of the resistor being shunted by a condenser for by-passing the radio and audio frequency circuits.

In the next section of Fig. 3, in addition to the power circuits described, audio frequency voltage is impressed upon the grids of the modulator tubes, varying the potential of these grids with respect to their filaments according to the voice waves, through the medium of the pick-up transformer and amplifiers.

The four 250 watt power tubes in the upper part of the set are the oscillators, which, in conjunction with the condensers and oscillation transformer, change the 2,000 volt direct-current power into alternating-current power at 833,000 cycles, thus generating the carrier wave, which is impressed on the antenna through a remote controlled double throw switch, which allows the same antenna to be used for receiving when the station is not broadcasting.

The amplitude of the radio frequency wave thus generated is constant as long as the plate voltage remains constant, and fluctuates with the plate voltage when the latter

is varied. Thus the upper section of Fig. 4 carries only modulated radio frequency waves, while the third section carries both radio frequency and audio frequencies, in addition to the 2,000 volt direct-current and the 25 cycle alternating-current power circuits.

Function of Modulator Tubes

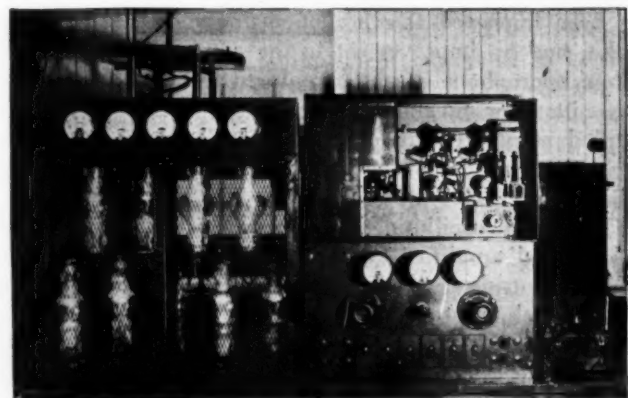
The function of the five modulator tubes, also rated at 250 watts each, is to vary the voltage on the plates of the oscillator tubes according to the voice frequency impressed upon their grids by the speech amplifiers. This system is known as power modulation, the modulation being accomplished by means of the constant choke coil in series with the positive lead to the modulator and oscillator tube plates.

The modulator tube grids are held at a static potential of 80 volts negative with respect to their filaments by means of a battery. The audio frequency from the speech amplifier then adds to or subtracts from this 80 volt grid potential. At an instant when the modulator tube grids have impressed upon them by the amplifiers a low negative, or zero potential with respect to their filaments, the tube impedances from the plate to the filament are low and a large plate current flows in the 2,000 volt direct-current circuit to the modulator tube plates.

Because of the very large inductance (50 henries) of the audio frequency choke coils in series with the plate supply, the total generator current can change very little in a brief interval of time. Hence, part of the generator voltage occurs across the choke coils, thus lowering the voltage impressed on the oscillator tube plates and hence the radio frequency output of the set. The next instant when the modulator tube grids have a high negative potential with respect to their filaments, the plate impedances are high and little or no current flows through the modulator tubes.

The choke coils, tending always to keep the total generator current constant, create a voltage which adds to the generator voltage and thus forces most of the current into the oscillator tubes, which increases the radio frequency or antenna output accordingly. In this way the audio frequency choke coils cause the voltage applied to the oscillator tube plate to fluctuate in proportion to the speech voltage impressed on the grids of the modulator tubes by the speech amplifier.

As the amplitude of current in the antenna varies directly with the plate voltage on the oscillator tubes and as this voltage varies from nearly zero to 4,000 volts, the antenna current varies accordingly. Fig. 5 shows an oscillogram of rectified antenna current taken when the announcer is speaking loudly into the pick-up transmitter. It is seen



General View of Equipment in the Large Operating Room



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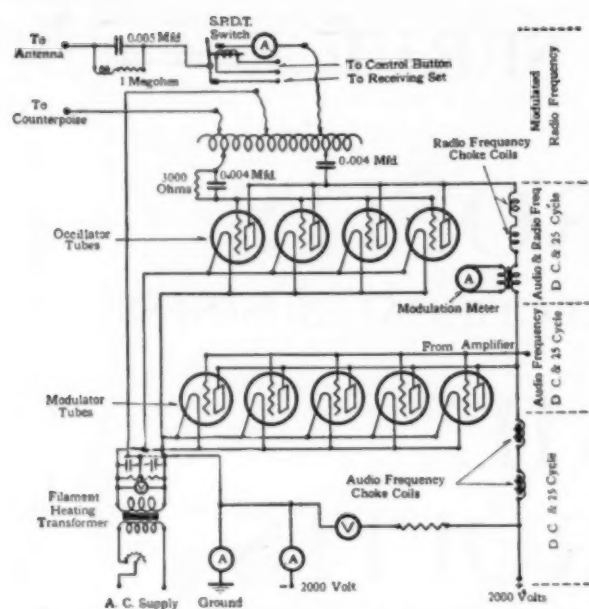


==QUALITY & SERVICE==



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Method of Hooking Up Broadcasting Transmitter Found Most Efficient

that the antenna current varies from nearly zero to nearly twice its no talk value. This variation in antenna current at voice frequency is known as modulation.

The Choke Coils

The radio frequency choke coils in series with the oscillator tube plates serve to stop any radio frequency from entering the modulator and power supply circuits. These choke coils are of air core construction and are about five millihenries inductance each. They thus offer a high impedance to the radio frequency, but negligible impedance to the audio frequency.

In order to indicate the amount of modulation, a so-called modulation meter has been developed. This consists of a current transformer, the primary of which is connected in series with the direct-current supply to the oscillator tube plates and the secondary of which is connected to a thermo-ammeter. The transformer ratio is such that an audio frequency variation in the direct-current from zero to twice its normal value gives full scale deflection. An air-gap is provided in the transformer core to prevent saturation due to the direct-current component of the plate current. The meter has a current scale marked from 0 to 100 percent modulation.

When the announcer is speaking into the transmitter, the modulation meter averages about 40 percent with maximum between 70 and 80 percent. Piano solos average about 30 percent, violin solos 20 to 30 percent and vocal numbers 40 to 50 percent with maximum of 100 percent. Of course the modulation meter indicates only the average volume of sound. While the meter may read only 30 percent in case of piano music, the individual notes at the instant of striking may reach 80 to 90 percent.

Allowing for the kind of sound being transmitted, that is, piano, speaking voice, solo, etc., the modulation meter provides a convenient means of finding the correct distance to place the artist from the pick-up transmitter and accounts to a large extent for the uniform volume of sound received from KDKA. The instruments at the top of the transmitter panel, Fig. 3, are from left to right, filament volt meter, ground current meter, plate ammeter, modulation meter and plate volt meter. The antenna current meter is mounted

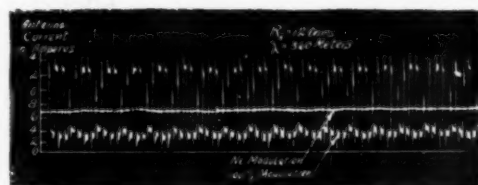
on the wall with a series condenser and discharge resistance and is not shown in the photograph.

Arrangement of Antenna

The antenna at KDKA consists of 6 wires, 190 feet in length on 20 foot spreaders. This antenna is supported 210 feet above the ground by a brick smoke stack at one end and by a 100 foot pipe mast on a nine story building at the other end. The operating room and studio are located on the ninth floor of this building. Fig. 6 shows the mast end of the antenna with the operating room directly below.

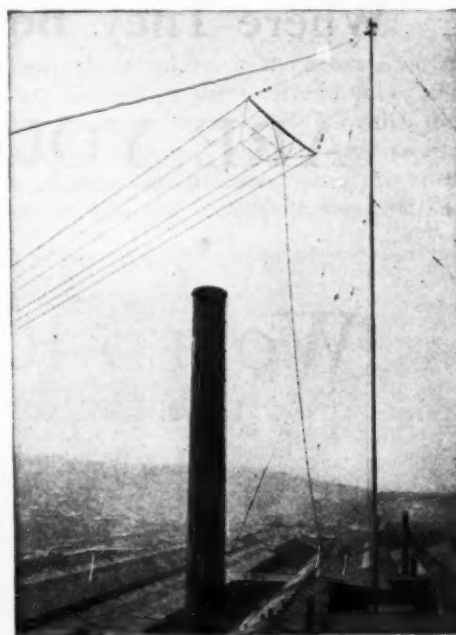
A counter-poise which is a duplicate of the antenna in construction is placed 110 feet beneath the antenna. This brings the counterpoise about 15 feet below the transmitting set. The down lead from the antenna and the counterpoise lead are made up of eight strands of No. 14 copper wire equally spaced around 1.5 in. diameter wooden spacers. The natural period of this aerial system is approximately 412 meters.

A series condenser of 0.0005 mf. capacity is used in series with the antenna and sufficient loading inductance



Oscillogram of Rectified Antenna Current for Modulation of Vowel A

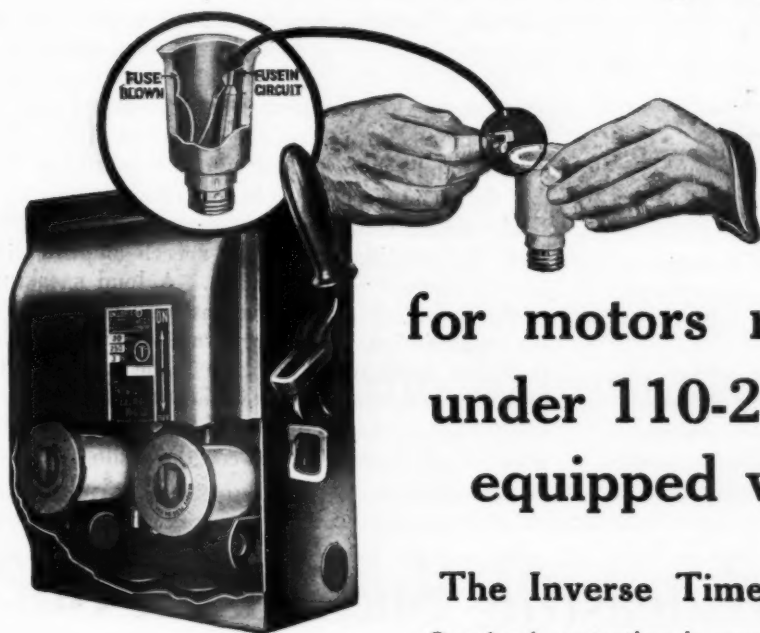
added to obtain the desired wave length of 360 meters. The series condenser is shunted by a radio frequency choke coil of 10 millihenries inductance in series with one megohm resistance, to drain off any static charge that might accumulate on the antenna when insulated from ground by the series condenser. The high frequency resistance of the antenna system at 360 meters wave length is approximately 12 ohms, a large percentage of which is radiation resist-



One End of Antenna Supported by Pipe Mast on Nine Story Building

"CIRCLETEED IS  GUARANTEED"

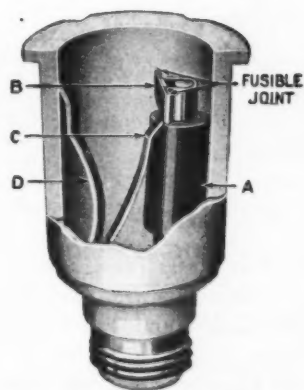
MOTOR STARTING SWITCHES with over-load protection



**for motors rated 5 hp. and
under 110-220—440-550 v.
equipped with snuf-arcs.**

The Inverse Time Limit Protective Plug

Overload protection is provided by two inverse-time limit protective plugs. The plug contains a stationary contact post with heating coil *A*, and a fusible line *B*, which binds a spring contact arm *C*, to the post. The fusible link is made in two parts held together by a low fusing alloy. In case of overload, the heating of the coil fuses the alloy, the spring contact is released and the circuit is opened, taking position *D*. The plugs protect against such overloads as are ordinarily met with in service, but by reason of the time lag in the heating coil the momentary starting overload will not be of sufficient duration to open the Circuit.



Send for Bulletin 54



The Trumbull Electric Mfg. Co.

PLAINVILLE, CONN.

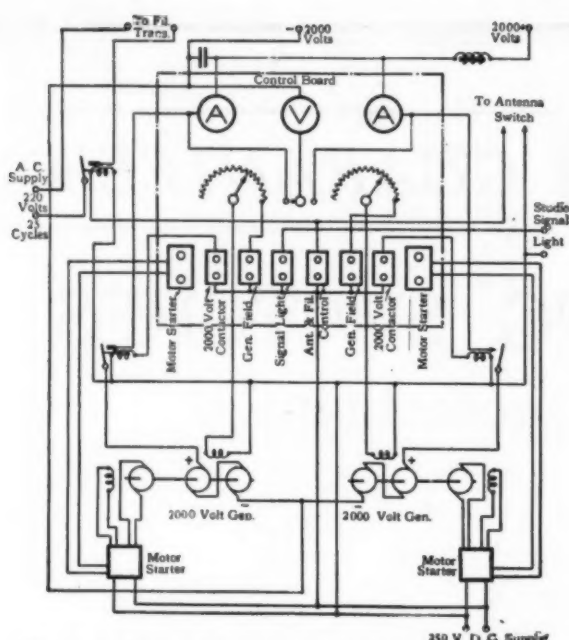
San Francisco

New York

Philadelphia

Chicago





Showing Circuit Diagram of Elaborate Equipment

ance. The antenna current at 500 watts is 6.5 amperes; at one kilowatt it is 9 amperes.

Power Equipment

The power equipment consist of two 2 kw. motor generator sets with 250 volt direct-current motors. The current employing two armature windings and two commutators permanently connected in series. Normally the motor generator sets are used with the generators paralleled.

Either set may be used alone with the radio set at reduced power. There is also a third motor generator set with a 220 volt 25 cycle motor which can be connected to the radio set in case of failure of the direct-current supply. This set is provided with an exciter to supply the field of the high voltage generator. A filter consisting of a 50 henry inductance and 32 microfarad condenser reduces the generator hum to a negligible amount. The panel beneath the speech amplifier on the right of Fig. 2 controls the power equipment. Here are mounted generator field switches and rheostats, generator paralleling switches, generator voltmeter and ammeters, voltmeter switch, antenna switch, control and studio signal light button to show the announcer in the studio when the transmitting set is in operation.

The engineer in charge of the station tests all filament and plate batteries before each program. He next starts the transmitting set and checks the wave length by means of a wave meter. He then lights the signal light in the studio notifying the announcer that the transmitter is in operation. The announcer turns on the studio amplifier which lights a signal light in the operating room notifying the engineer that the audio circuits are in operation.

The engineer then watches the modulation meter and adjusts the amplification of the speech amplifier to give the desired amount of modulation. A loud speaking receiver in the operating room serves as a check on the quality of the transmission. When programs from local churches or from the downtown studio are to be transmitted, the telephone lines is tested before the program. Orders and any special arrangements are made over a supplementary order wire or telephone line between the radio station and place of performance.

Principal Broadcasting Stations in the United States

By Knowing Them You Will Be in Position to Feature Equipment That Will Receive Signals Most Efficiently Locally

The accompanying chart which was prepared by the Associated Business Papers, Inc., is presented by courtesy of the *Industrial Digest*, New York. It gives a general idea of the localities in which the greatest sales of short range receiving apparatus can be made. Vacuum tube sets with various amplification equipment can catch broadcasting from stations 1,000 or more miles away. The black circles represent a 30-mile radius from broadcasting stations, and shaded areas show the 100-mile range. Below is printed a list of stations sending messages with call letters, wave length, name of controlling company, and range:

Anacostia, D. C., NOF, 350 meters.
Atlanta, Ga., 4CD, Carter Electric Company.
Austin, Tex., 5ZU, 360 meters, Southern Radio Co., 200-500 miles.
Chicago, Ill., KYW, 360 meters, Westinghouse Co., 2,000 miles.
Cincinnati, Ohio, WMH, 360 and 485 meters, Precision Equipment Co., 1,000 miles.
Cleveland, Ohio, WHK, 360 meters, W. R. Cox, 300 miles.
Columbus, Ohio, 8YO, 275 meters, State University, 700 miles.

Dallas, Tex., WRR, 450 meters, Police Department, 1,500 miles.
Davenport, Iowa, WOC, 360 meters, Davenport School of Chiropractic, 600 miles.
Denver, 9ZAF, 360 meters, Reynolds Radio Co., 1,500 miles.
Denver, DD5, 325 meters, Fitzsimmons Hospital, 1,500 miles.
Detroit, Mich., WCX, *Free Press* (new, May 5, 1922).
Detroit, Mich., WWJ, 360 meters, *Detroit News*, 1,500 miles.
Fort Worth, Tex., WPA, 360 and 475 meters, *Fort Worth Record*, 1,000 miles.
Fort Worth, Tex., WBAP, *Star-Telegram* (New, May 5).
Hamilton, Ohio, WRK, 360 meters, Doron Bros., 1,400 miles.
Hartford, Conn., WQB, C. D. Tuska Co.
Indianapolis, Ind., WLK, Hamilton Mfg. Co.
Jersey City, N. J., WNO, 360 meters, Wireless Telephone Co.
Jersey City, N. J., 21A, 200 meters, *Jersey Review*, 950 miles.
Kansas City, Mo., WOQ, Western Radio Co.
Lincoln, Neb., 9YY, 375 meters, State University, 1,200 miles.
Los Angeles, Cal., KHJ, 360 meters, *Los Angeles Times* (new).

The Machine You Have Been Looking For!

A receiving unit that has been designed for use in the finest home. The apparatus, consisting of detector and two-step amplifier is enclosed in the upper section of a solid mahogany cabinet with space for the batteries in the lower section.

Another attractive feature is the loud speaker built within the cabinet—so that no part of the unit trails along outside. This arrangement of the loud speaker causes the music and spoken word to be reproduced in clear, full tones, and yet sweetly and without distortion.

The price is \$125.00. We offer liberal discounts to dealers and jobbers.

Manufactured by

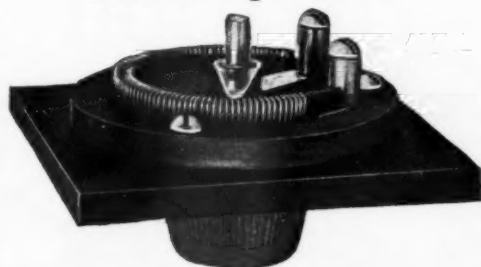
Eastern Radio Manufacturing Company

122 FIFTH AVENUE

NEW YORK CITY

Stimulate Fall Radio Sales

Everything needed to stock your store at attractive prices.



DRISCO RHEOSTAT

List ----- 80 Cents
The only rheostat on the market with register strip inserted ENTIRELY through base making cement or glue unnecessary and contact perfect at all times.

Other Specialties:

RADIOMETER	POTENTIOMETER
VARIOCOUPERS	VARIOMETERS
HEADSETS	DIALS
VERNIER RHEOSTATS	PLUGS
PHONE CONDENSERS	TUBES
GRID CONDENSERS	SWITCH LEVERS
SOCKETS	SPAGHETTI
COMPLETE SETS	ETC.

DISCOUNTS

35%

to

50%



43 PLATE CONDENSER

List ----- \$3.75
Equipped with Fahnestock Clips and wire ring washers giving perfect alignment between plates. Nickel finish throughout. Packed in individual boxes and furnished with stencil to aid mounting.

WRITE FOR DESCRIPTIVE CATALOGUE

HAROLD M. SCHWAB, Inc.

Sole Distributor of Drisco Products



419 West 42nd Street, New York City

NATIONAL ELECTRAGIST

Los Angeles, Cal., KOG, Western Radio Electric Co.
 Los Angeles, KYJ, 360 meters, Hamberger, 1,000 miles.
 Los Angeles, Cal., KHJ, 360 meters, *Los Angeles Times* (new).
 Madison, Wis., WHA, 360 and 485 meters, University of Wisconsin, 1,000 miles.
 Medford, Hillside, Mass., WGI, 360 meters, American Radio Research Co., 1,000 miles.
 Minneapolis, Minn., WLB, University of Minnesota.
 Newark, N. J., WJZ, 360 meters, Westinghouse Company, 1,800 miles.
 Newark, WOR, 350 meters, Bamberger's, 300 miles.
 Newburgh, N. Y., WCAB, *Newburgh News* (new, May 5).
 New York, N. Y., (Bedloe's Island), WVP, 1,460 meters, U. S. Signal Corps.
 New York, N. Y., WWZ, 360 meters, Wanamaker's Department Store, 1,400 miles.
 Oakland, Cal., KZY, A. & B. Radio Supply Co.
 Oakland, Cal., KZM, 360 meters, Hotel Oakland, 1,900 miles.
 Oakland, Cal., KLX, *Oakland Tribune* (new, May 5).
 Omaha, Neb., WOU, R. B. Howell.
 Pasadena, Cal., KLB, 360 meters, J. J. Dunn & Co., 600 miles.
 Pawtucket, R. I., IXAD, 290 meters, Standard Radio & Electric Co., 400 miles.
 Philadelphia, Pa., WIP, 360 meters, Gimble Brothers, 1,000 miles.
 Pittsburgh, Pa., KDKA, 360 meters, Westinghouse Co., 2,000 miles.
 Portland, Ore., KSW, 360 meters, *Oregonian*, 900 miles.
 Richmond, Va., WBAZ, *Times-Dispatch* (new, May 5).
 Sacramento, Cal., KQV, 360 meters, J. C. Holbrecht, 1,000 miles.
 San Francisco, Cal., KDN, Leo J. Meyzerg Co.
 San Jose, Cal., KQW, 360 meters, C. D. Herrold, 1,500 miles.
 Schenectady, N. Y., WGY, 360 meters, General Electric Co., 1,600 miles.
 Seattle, Wash., WJO, 360 meters, Northern Radio Electric Co., 1,200 miles.

Springfield, Mass., WBZ, 360 meters, Westinghouse Co., 1,400 miles.
 Stockton, Cal., KWG, Portable Wireless Tel. Co.
 Toledo, Ohio, WDZ, Marshal Gerken Co.
 Washington, D. C., WDN, Church of the Covenant.
 Washington, D. C., KQV, Doubleday Hill Electrical Co.
 Washington, D. C., White & Boyer, 1,000 miles.

Appoints Radio Manager

The Multiple Storage Battery Corporation of New York City has placed R. H. Butler in charge of sales and advertising for its radio division.

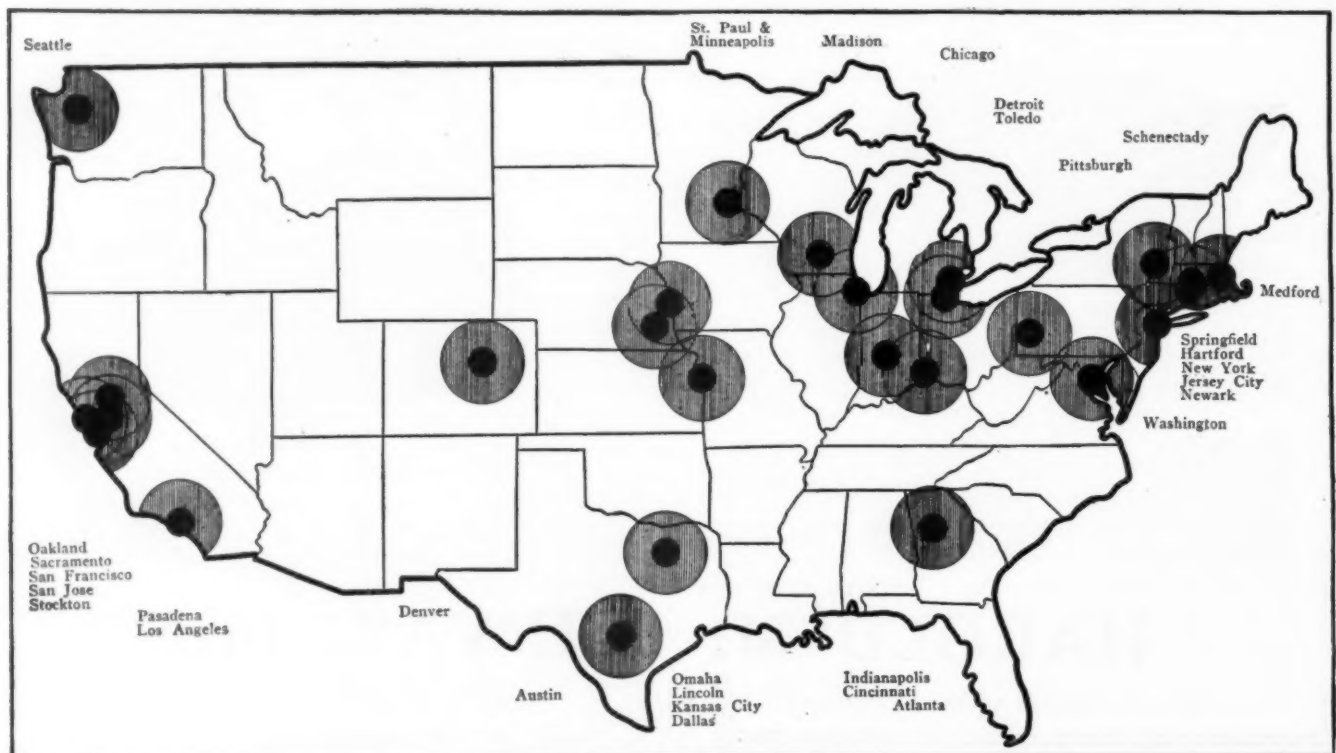
Mr. Butler has been associated with the merchandising of radio products for three years. He has been connected with *Radio News*, Metropolitan Advertising Company and Lincoln Advertising Service. During that time, he has been actively connected with several most prominent advertising and selling campaigns.

New Radio Manufacturer

The Machen Radio Mfg. Co., Inc., 4639-43 East Thompson Street, Philadelphia, has been formed to manufacture radio apparatus. The company is connected with the Machen Electric Mfg. Co., manufacturers of wiring supplies, and is under the management of the officers of that company. Production has already been started on filament rheostats, variometers, variocouplers, telephone jacks and telephone plugs. A 2400 ohm headset is also in production and later it is planned to bring out crystal detectors, lamp sockets and dials.

Issues Radio Bulletin

The Peerless Light Company of Chicago, New York and San Francisco, distributors for the Radio Corporation of America, has issued an elaborate bulletin on radio which is being mailed to the trade. Copies may be procured upon application.



Showing List of Cities Wherein Radio Broadcasting Stations Are Situated

A s
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Pignolet Radio Volt Meter

A single instrument to do the work previously done by two or three separate instruments has been brought out by the Pignolet Instrument Co., 114 Liberty Street, New York City. The two range instrument has been specially designed for testing receiving sets and will make all tests of A and B batteries, circuits, coils, condensers, etc. The instrument



is of the movable coil type with permanent magnet and is dead beat. It has a corrector for zero errors.

The base is of polished wood $4\frac{1}{2}$ inches diameter and the scale is 3 inches long. The graduations are such that close readings can be made. The low range reads from 0-7½ volts in fifth volt scale divisions. The high range is from 0-150 volts. Beside the portable meter with base as shown, the meter is also furnished as a flush type and as a surface type instrument for switchboard mounting, back connected. All three types list at \$10.

60 Cents list is the price of our

HOLD-TITE RADIO PLUG

Neat

Simple

Practical

Positive contact

Takes any tip

Fits any standard jack

No tools necessary to connect

Martin Copeland Co.

Providence, R. I.

Manufacturers of the incomparable

SHUR-GRIP PLUG

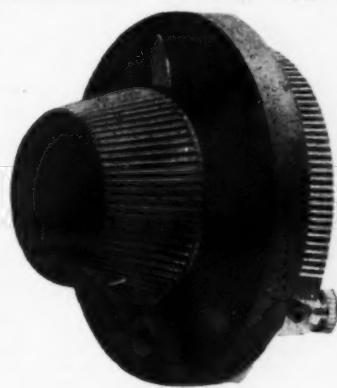
And Other QUALITY RADIO PRODUCTS

RADIO PARTS

you can make a profit on

FILAMENT RHEOSTAT

Non-Magnetic 6 Ohms $\frac{1}{2}$ Amp.



LIST
\$1.00

Discount
(100 lots)
65%

SWITCH LEVERS

Composition Anhy Droplax $\frac{1}{4}$ Radius



LIST
50c

Discount
(100 lots)
70%

RUBBER KNOB

Hard Vulcanized $\frac{1}{4}$ Radius



LIST
60c

Discount
(100 lots)
60%

CHAMPLIN MFG. CO.

90 W. BROADWAY NEW YORK

QUALITY GOODS SINCE 1860

Making Two Sales Instead of One

Some of the Factors That Affect Retail Sales and Some Pointers
For Increasing the Gross Revenue From Each Customer

Did you ever stop to consider that the only profitable time you put in as a salesman is when you are actually talking sales or closing the deal with the customer? Time spent in hunting for stock that is not where it ought to be is wasted. Time spent in unnecessary details connected with the winding up of the sale is also lost motion.

You have probably shopped in different kinds of stores for different merchandise and maybe you have observed some things that would help you in your own business. For instance the chain grocery stores and chain cigar stores. They have been more highly developed from an efficiency standpoint than probably any other class of retail store. Study has been given to the size and arrangement of the stock containers and things that are most called for are the ones that are easiest to reach. Notice the location of the cash register. Right in the center of the whirl, so to speak, with some of the counter and show case on both sides.

Let us draw some conclusions from the stock arrangement. Package goods which does not need to be displayed can well be carried in back of or under the counter. In chain cigar stores cigarettes are so carried. Other stock which is designed to interest the prospective buyer is in a glass show case right under his eyes. In the radio field there are many parts and pieces of apparatus which could be very well displayed in glass showcases and while we can scarcely class them along with cigars, yet the merchandising idea is the same in both cases.

Good Display Important

Sales of complete equipment and parts can be doubled and tripled by using good display and by trying to sell the customer more than he came in to purchase. Take crystals, for instance. As a rule if you ask for one, the salesman hunts around in a drawer or on the corner of a shelf, wraps it up and says "thirty cents please." A tray full of crystals in a show case handed to the customer with some sage advice as to the advisability of buying two or three will almost always bring the extra sale. The sale of a crystal alone is so small that it is hardly worth bothering with,

but if through the sale of the crystal, some more crystals, wire, or other equipment can be sold, the customer can be made to pay a worth while profit to the store.

The same thing holds true with vacuum tubes or any of the character of equipment that needs periodical replacing in active service.

There are many of the larger radio instruments such as receiving sets, combination phonographs and so on that can be beautifully displayed on tables. Placards explaining what the devices are and their prices will add much to the value of the display.

Selling merchandise in small units such as radio apparatus requires display all the time from the street to the wrapping table. The display in the window must be made attractive and indicative of what is for sale inside. It must not be too confusing and must not have too many articles. If the prospective customer is attracted inside the store by the window display, he must next be attracted by the showcases, tables and counters. If it is not possible to wait on him immediately, the display and the placards which become silent salesmen may suggest additional things that he wants.

Clean windows, clean showcases, clean floors, orderly stock arranged so that the thing wanted can be reached instantly go a long way in making a favorable impression on the customer.

Ring up the Cash Drawer

Much money is lost and wasted in retail establishments through the neglect to immediately place incoming stock in the shelves or where it belongs. A shortage of any item requires a lot of asking, investigation and perhaps opening of crates or boxes received the day before. All of which interferes with the orderly conduct of business and cuts down the valuable time which should be spent in selling the customer.

After the customer has purchased all the articles he has decided to buy, the next important thing is to get the money, have the parcel wrapped up and speed him on his way. Chain grocery stores and chain cigar stores have very effective methods of doing this. Department stores, especially the large ones in

large cities are as a rule backward in this particular. The greatest drawback to department store trading is the long wait for change and parcel.

Whether selling large things or small, the future trade depends on the value of the goods and the courtesy shown the customer. Much can be learned from other lines of selling and in trying always to find ways to improve your own service to customers. As a rule it seems to take a very long time to buy a pair of shoes because it seems to be a custom in a shoe store for the salesmen to wait on two or three customers at once. This tries the customer's patience and is something to be avoided in radio merchandising.

Arrangement of Lunch Hours

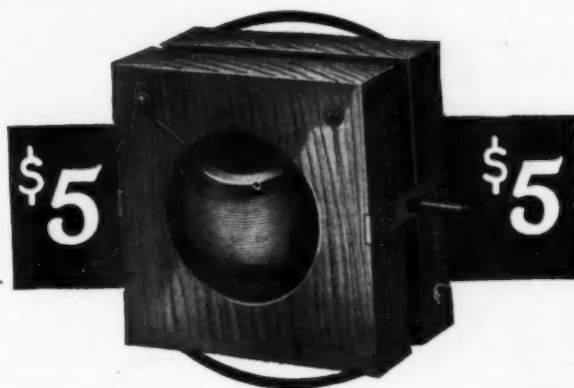
Another fault that can be found with many city and town radio stores is the poor arrangement of lunch hours. Owing to the fact that some radio equipment is comparatively cheap, many salaried employes are in the market for it and their favorite time to buy is at lunch time. Notwithstanding the fact that the lunch hour will often be the busiest, many radio stores allow their employes to take the regular lunch hour, leaving the store sadly shorthanded. These hours could just as well be made right before and right after the customary lunch hour. Early closing is another source of loss. Radio stores that close about the time other business houses close lose much business that would come to them from people on their way home from work. Not very much can be expected in the way of radio sales in the early morning and it might be just as well to have those in the radio department come in an hour or so later and stay a like amount of time in the evening.

Sell Two can be made the slogan for almost anything in the store. This means that where a man or woman comes in to buy one thing, a point should be made of trying to sell two. Sell two crystals on the idea that crystals vary slightly and on certain nights better results may be obtained on the other one. Sell two tubes on the idea that breakage of a tube in the midst of an interesting talk or concert will end the concert for the evening which may be

QUEENS Vario Coupler



QUEENS Vario Meter



**WE SELL THESE GOODS
TO YOUR CUSTOMER**

But we need a place where he can secure them quickly.
Let us tell you how we do it.

Write for our proposition

QUEENS RADIO COMPANY, Inc.

25 MEYERS AVENUE

WINFIELD, L. I.

RADIO PARTS

Knobs—Dials—Ear Caps—Strain Insulators—Etc.

"MEGOHMO" MOULDED INSULATION

METAL STAMPINGS

From Your Blue Print Or Samples

WATERBURY BUTTON CO.

Manufacturers Since 1812
WATERBURY, CONN.

OFFICES—NEW YORK

BOSTON

PHILADELPHIA

CHICAGO

SAN FRANCISCO

TORONTO, ONT.

When

you want a man, or want a job, or want
to buy or sell special electrical equip-
ment, consult the MARKET PLACE
of the NATIONAL ELECTRAGIST.

JOS. M. ZAMOISKI COMPANY

The Electrifiers

Radio Building,

Baltimore, Md.

—DISTRIBUTORS—

"Amrad" Products

Chelsea Radio Mfg. Co.

Radio Corp'n of America

Crosley Mfg. Co.

Clapp-Eastham Co.

C. D. Tuska Co.

Colin B. Kennedy Co.

Electrifier Products "B"

Wm. J. Murdock Co.

Batteries

PROMPT DELIVERIES

disappointing, especially if company is being entertained by radio. Sell two headsets on the idea that two can listen in just as easily as one and there will not be the frequent changing from person to person. Sell a crystal set along with a large tube set for rough work and receiving broadcasting from nearby points. Sell equipment for two antennae on the theory that they can be pointed in different directions and either one or the other used, depending on the direction of the station it is desired to pick up.

While the units, except in the case of the larger receiving sets, are of small financial importance, the real selling, careful stocking and Sell Two ideas, yet there is a chance to more than double the profit in sales in the department because the fixed charges like rent, heat, etc., remain constant and all the additional profit that comes in is velvet.

Let's Sell Two.

Designing Radio Equipment

By WM. HUPPERT, E. E.

Wise Counsel Given by Representative of Volta Engineering Company

The designer of radio apparatus should keep in mind a very important factor, namely that simplicity of arrangement and adjustment in other words the construction of any part used in broadcast reception should be designed so as to facilitate its operation by non-experienced enthusiasts.

As a matter of fact there still are radio manufacturers not realizing the present situation. In the early days of radio telephony there might have been sometimes the desire among amateurs to have technical looking sets. That meant a congestion of dials, switch knobs, etc., for which there was no essential reason. Doing away with the prevailing sentiment among the early enthusiasts, this construction has to be replaced by one of absolute necessity. I want to emphasize that radio has reached a state of development where it is no plaything. On the contrary people do not want to play with the set itself. They want to have the adjustment for reception simplified to the highest possible degree. In short the adjustment and all other operations are secondary, the primary and principal thing being to hear perfectly without any difficulty in operation. As radio becomes more and more a household necessity it is important and obvious to have it designed in a way which does not make its use—and this is the pur-

pose radio parts and sets are bought for—a troublesome affair. If the above ideas are carried out there positively will be a still increased interest by the public in general.

Let me mention briefly the up-to-date requirements of certain parts used in building sets:

The variometer should have a range to suit grid and plate capacity, and be constructed in a manner to prevent dislocation of active wire turns. Meeting this requirement it will be possible to relocate the same point of inductance by turning to the same graduation mark on the dial. The rotor and stator should be made of a material which does neither decrease nor increase in size. A reduction of their size would mean a loosening and coming off of wires, where on the other hand an increase means a different range after transformation. Furthermore elimination of friction is essential. Distributed capacity should be kept as low as possible to avoid any undue losses. It is understood that the range of a variometer will be increased when the air space between stator and rotor is decreased. Means must be provided for fastening the variometer to either panel or table.

A vario coupler without taps to facilitate its mounting and use is undoubtedly preferable. The degree of coupling between the primary and secondary should be determined as an optimum between elimination of interference and intensity of sound. The construction in general ought to be in line with the variometer.

The variable condenser has to be solidly built so as not to allow variation in calibration. There should be no play in the bearings, and the construction in general such as to preclude the possibility of a short circuit. There should be means provided for taking up end play and adjusting the friction if it is not a balanced type.

The complete tube set should embody the individual features of the component parts, and have these arranged in a manner to make it an easy matter to tune and adjust them. It is advisable to shield the receiving set in order to eliminate the effect of body capacity.

The crystal set must be constructed of only essential parts. The designer shall bear in mind the purpose it is used for. As young people often without skill represent the majority of crystal set users, it has to have an arrangement combining extreme simplicity with effectiveness. The point should not be

neglected that even a simple tuning device must allow to obtain the highest efficiency, namely to reach the peak of the resonance curve by gradually varying either inductance or capacity in an oscillating circuit. The range should not only allow reception of broadcasting stations but also of code messages transmitted on a 600 meter wave length, as many wireless fans enjoy receiving code signals sent out by various commercial stations.

When radio manufacturers commence to pay the attention they should to these points in order to simplify operations, radio will not only cease to be a fad but become a fixed feature of our daily life similar to the automobile and the moving picture. Electragnists can help along the good work by buying only from those concerns who they know are reliable, those whose guarantees are backed up by wisely chosen advertising and who observe proper channels for the distribution of their products.

Jobbers Give Radio Course

To the end that radio material be sold through legitimate electrical channels, the Electrical Jobbers' Club of New York has planned a comprehensive course on radio. This course, which will cover a period of 10 weeks, includes instruction in the practical and technical features as well as the merchandising installation and sales end of the art.

The course is open to all electrical contractor-dealers and their employees located in the metropolitan district. The assembly room of the New York Edison Company at 44 West 27th Street is used for the meetings, and meeting which began the last of July are being held weekly. The course is free.

Radio in West Texas

Radio concerts are to be featured at the Runnels County Fair, Ballinger, Texas, on September 14, 15 and 16. One of the booths will be fitted up with an Armstrong super regenerative set and concerts will be given to the crowds both day and night. Prizes have been offered for the best home made receiving set exhibited at the fair.

Changes Position

M. C. Rypinski has resigned his position as head of the radio sales division of the Westinghouse Company to become vice president of C. Brandes, Inc., of New York City.

Patent Pending

SUNRAID

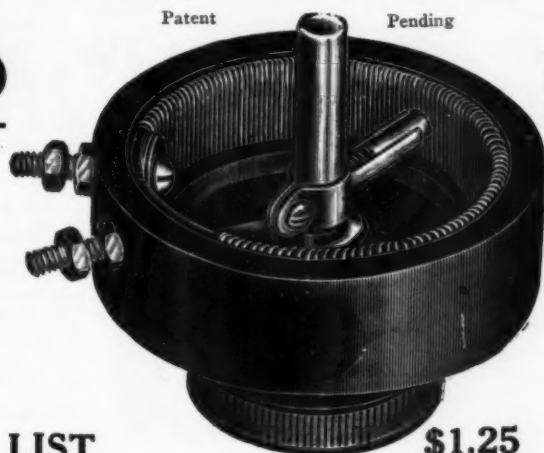
PRODUCTS



List
Price
3 in. \$1.00
4 in. \$1.50

DIALS

The new improved SUNRAID DIALS are of one solid piece of moulded condensite. The Dials are so constructed that when mounted on a panel they set off 1-32 of an inch from the surface of the panel, which gives a maximum of efficiency in smooth operation — no gripping.



LIST

RHEOSTATS

Radio men who want a Rheostat of high class workmanship that gives a maximum amount of service will find it worth their while to buy the SUNRAID RHEOSTAT. It gives perfect contact against winding at all times. (See spring attachment in above photograph.)

Windings guaranteed not to jump out.

\$1.25



List
Price
\$1.25

PLUGS

SUNRAID PLUGS are made of the best of material—casement of pure bakelite with a high polish. These plugs will take cords with spade or wire tips.

SUNRAID PRODUCTS are always guaranteed. Distributors wanted for all parts of the world. Write for proposition. AMATEURS—If dealer cannot supply you, write direct and send dealer's name and address. DISTRIBUTORS—Samples will be sent to you C. O. D. upon request.

SUNRAID

534 EIGHTH AVENUE,



Trade Mark

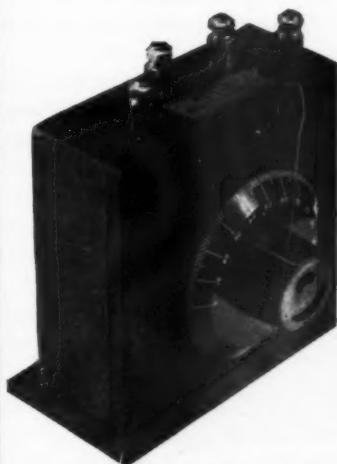
RADIO CO.,

NEW YORK CITY, U. S. A.

VOLTA

PRODUCTS

Scientifically Designed, Well Constructed,
High Grade Workmanship



Variometer-Coupler, without taps -----\$3.85
(Illustrated). The ONLY coupler with sharp primary tuning.

Variometer -----\$3.25
Low distributed capacity, high range (.16—.79 millihenry).

Crystal Set -----\$8.50
Sharp and effective tuning. Substantial detector.

Vacuum Tube Set.

Write for Trade Discounts and Literature

VOLTA ENGINEERING CO.

172-4 Lorimer St.,

Brooklyn, N. Y.

HARD RUBBER TURNING

—For—

Electrical, Surgical and
Experimental Purposes

Radion Hard Rubber
Radio Panels

CUT TO ANY SIZE ON SHORT NOTICE

Condenser Bases

Detector Bases

Special Knobs, Handles, Discs, Washers,
Bushings, etc., made to order.

SHEETS, RODS, TUBES

Send Sample or Sketch for Quotation

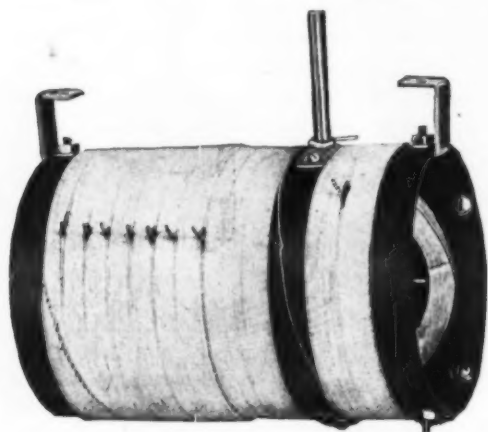
NEW YORK HARD RUBBER TURNING CO.

212 Centre Street,

New York, N. Y.

The All-Wave Coupler

The All-Wave coupler which has been placed on the market by the Capitol Phonolier Corp., 54-60 Lafayette Street, New York City is a combination vario-coupler and loading coil, which will cover a wave length range of from



150 to 3,000 meters when hooked up with one .001 m.f. variable condenser in the primary circuit. It incorporates a combination flat and bank winding in one unit which makes for clear long wave reception. The price is \$15.

Stern Three Plate Condenser

What is claimed to be the first three plate condenser on the market is being put out by Stern & Co., 308 Asylum Street, Hartford, Conn. The condenser serves as a vernier



and when connected in a radio set with one of the larger types of condensers makes for easy tuning because by moving the vernier condenser through its entire travel the electrical effect is not much more than 1/8 inch travel on the larger condenser. The dial has large, easily read figures.

New Equipment Placed on Market

The American Radio and Electric Company, 1133 Broadway, New York City, manufacturers of detector sets are now preparing several new types of radio apparatus which they will have ready for distribution sometime in the fall. These models will embody several new and original ideas in radio engineering of a very useful and attractive nature.

De Veau Radio Plugs

The De Veau radio plugs, made by Stanley & Patterson, West and Hubert Streets, New York City, are designed to fit all standard jacks. Connections are easily made to cords with tips or any style of conductor, either stranded or solid without soldering. These plugs are used for connecting head sets, loud speakers, and other apparatus without the necessity of making connections to binding posts. A strain relief anchor takes the strain off the conductors. The flat style is \$1.25 and the round style \$2.



B. & B. Audio Frequency Transformer

The Betts & Betts Corp., 645 West 43rd Street, New York City, is marketing two types of audio frequency trans-



formers, one known as the W 400 and the other the W 401. Both are similar in appearance from the outside and the illustration will serve to show both types. The transformers are very small and light and are very compact. They are arranged for use in any position.

Pot-Rheo Combination Unit

A refinement in radio apparatus has been made by the Acme Apparatus Company, 186 Massachusetts Ave., Cambridge, Mass., in the Pot-Rheo, or combination unit containing a potentiometer and rheostat mounted concentrically in the same base.

This piece of apparatus finds a ready use for radio and audio amplification and with detector tubes. The rheostat is for filament control, and the potentiometer for fine varia-



tion in either B battery potentials on a detector tube, grid potentials on audio amplifier tubes, or as a stabilizer, so essential for radio frequency.

Both the potentiometer and rheostat are wire wound; the former 200 ohms, and the latter 4 ohms.

Yearly subscriptions to the National Electragist, which includes The Radio Service Supplement as a part of its regular issue, \$2 a year; Radio Service Supplement bound separately, \$1 a year.

RADIO SERVICE SUPPLEMENT TO THE NATIONAL ELECTRAGIST

PUBLISHED ON THE FIRST OF EVERY MONTH

All Communications Should Be Addressed to
NATIONAL ELECTRAGIST RADIO SERVICE SUPPLEMENT
15 West 37th Street, New York City

National Electragist, formerly Electrical Contractor, was established 21 years ago as the official journal of the National Association of Electrical Contractors & Dealers.

Number Five

OCTOBER, 1922

Ten Cents a Copy

Seeing the Future of Radio

Radio is very young. It has developed with more rapidity than any other industry its size that the world ever knew. Its future is beyond the mists of its rising sun. We cannot tell what its day will hold forth. We have seen it develop from a mere dream of the scientist into a practical device with many forms, some so simple that any schoolboy can construct it and make it operate and some so complex that they tax the mental abilities of our greatest minds to comprehend them. And today we see several hundred thousand receiving sets arranged to listen in on the transmitting of hundreds of broadcasting stations scattered throughout the country. And the end is not yet.

Anyone who thinks that the radiophone is to be limited to its present use had better wake up. Bigger things are coming. New uses suggest themselves and before we know it the whole industry undergoes a change.

It seems only yesterday that we heard of someone dancing to radio music. This was done more as a trick than anything else. We are astonished to hear that radio is now seriously considered as the ideal music for dancing. The day may yet come when the whole country will sway to the music of one single orchestra. The Hotel Commodore, New York City, has just completed the installation of a radio receiving set with a loud speaker that is attracting the attention of the dancing masters of the east who see in it great possibilities of buying their music from one central source just as they obtain their heat, light and power.

The amplifying and loud speaking apparatus which has been installed by the Western Electric Co. as a permanent part of the hotel equipment, is on a similar scale to the one used in Madison Square Garden on Armistice Day when 38,000 people in and about the building were able to take part in the exercises. Projectors have been placed in various parts of the ballroom and connected through vacuum tube amplifiers to the radio receiving set.

"I have been much interested in this demonstration of dance music by radio," says Joseph O'Brien, President of the Dancing Masters' Association in discussing the Hotel Commodore equipment. "First class music for dancing is essential if we are to please our patrons and this kind of music costs us real money. It is an obvious waste for a hundred academies to employ a hundred orchestras if they can connect by radio with a central station which transmits the dance music. If such a station were established,

it could readily afford the best orchestra in the world—one entirely made up of top notchers. Yet the cost to each academy would be less than its present payroll. Of course this would not eliminate local musicians because there would always be a need for them for instruction and for special dancing."

The idea of radio music is not looked on with such favor by officials of the musical unions. A striking example of this was the refusal of the local musical union in Cincinnati to permit a special broadcasting program of dance music to be received in the Sinton Hotel, Cincinnati, where the convention of the National Association of Electrical Contractors and Dealers is to be held the week of October 9.

Powerful as the musical unions are to enforce their edicts, they will fail if the broadcasting of good dance music is made practical which it probably will this winter. And in the end the musicians will not suffer a lack of employment. When textile machinery was first introduced in England, the guilds which were the forerunners of the modern unions saw the downfall of the workingman because machinery would do all the work. But more men were employed with the machinery than were ever employed before it was used. More printers are today employed when typesetting machines are used than when all type was hand set. And more typists are employed today when letters are written on typewriters than were ever thought of when letters were written by hand.

The theatre promises to be another successful venture for radio broadcasting. So far only a few have tried it and the results have been far from successful. In the first place the theatres and motion picture houses view the advent of radio with a certain amount of alarm. They believe that it is a competitor, that it will have a tendency to keep people at home and they will then lose their audiences. True there may be a grain of truth in this, but nothing will ever keep people from seeing good theatrical performances or first class motion pictures. In the few instances that radio has been used by theatres, the installations were not correct, the instruments were not adapted to the work, and the handling of the receiving sets was not well done. The broadcasted report of a fight at one New York theatre was a jumble of growls, interference and howling in a tinny raucous voice that was so jumbled that it was scarcely possible to distinguish a word. Several thousand people had come to the performance, many of whom had never heard a radio broadcasting program and who came solely to get a new experience. The experience was a sad one and it is

safe to say that it will be a long time before any of these people will become radio fans. There will have to be a lot of advertising and salesmanship to live down such a reputation.

But these things will work themselves out in time. Some progressive theatre owners will get hold of the right kind of equipment and the right kind of operators and will produce radio concerts and news programs that will be a real benefit to the industry and a pleasure to the audience.

Attempting to Throttle Radio

There have been several attempts to belittle and to throttle the use of the radiophone in recent months.

During the spring when radio was at its best and when receiving equipment was selling like wildfire, many automobile accessory merchants took on radio equipment as a side line. Even some of the jobbers went in for it. At that time the sales of automobile accessories were slowing up a little and automobile accessory manufacturers got worried. They threw a lot of cold water on the whole radio idea, said it was only a flash in the pan and all that sort of thing. They were of course looking out for their own selfish interests.

But the temporary setback of radio sales in the summer had one good result. It definitely took the sale of radio equipment out of automobile accessory hands because when sales slowed up the automobile people would not touch it. With this class of dealer, an excellent merchant in his own field eliminated, the electrageist once more gains the controlling hand in the merchandising of radio equipment. We shall not see this winter the retailing of receiving and sending apparatus by concerns foreign to the field.

The second instance of attempted throttling of the radio was shown in the deliberate cutting out of an educational motion picture film which showed the operation of radio and which gave step by step the process of home manufacture of a small receiving set. This film was shown once and was then suddenly killed and was never shown again. Can it be that motion picture interests were afraid to assist the radio movement? This looks like a small piece of business.

The third attempt is the effort on the part of the musical unions to stop the broadcasting or receiving of dance music for public dancing. The thought behind their ukase is that with radio as a source of dance music, there will be no further need for orchestras and bands and many musicians will find themselves out of a job. The unions are sufficiently strong to prevent radio being used for this purpose in some places, but it is bound to gradually creep in and there will come a time when we will have radio dance music, union or no union. But the effect on the musicians will not be what they expect. There will be a still greater demand for good musicians to broadcast the music.

Better Broadcasting Programs

Broadcasting during the summer has not been up to snuff generally speaking. There are several stations that have maintained a high standard of entertainment, instruction and new features, and these stations are to be congratulated on the fine work they have done. There are other

stations, by far in the majority that have not kept pace with the demands of the public and the requirements of a growing industry.

We cannot predict what the public wants to hear. We can only experiment and try to find out. If an author writes a book he thinks the public will like, the sales of the book are a direct barometer of the public's approval. A theatrical producer is able to prove his judgment of the public taste through the box office window. But there is no way to find out whether radio broadcasting is making the right kind of an appeal. If the public likes it, it listens in, perhaps discusses the program with a neighbor the next day and then listens again. If the public dislikes the program, bang, off goes the switch and out comes the evening paper, the pinochle deck or some other form of amusement. And all this time the broadcasting station perspires faithfully onward regardless of whether the program is being listened to or not, not knowing and having no way of finding out.

Dealers have not taken the right kind of interest in broadcasting. If they had, we would have had better programs on the whole. Many dealers do not know where the local sending stations are even. The better plan would be to find out, get acquainted with the manager of the station and try to help him with constructive criticism. The manager is doing his best but he is working in the dark and has only his own judgment to back him up.

Advertise the broadcasting programs. Station WJZ in Newark has during the summer broadcasted the ringside returns of several fights and has for the first time in radio history had an entire opera company broadcast the principal music of an entire opera, Aida. In spite of these accomplishments, the only way the public had any advance notice was through the daily radio programs published in the daily newspapers. There were show window posters for locally advertising the fights but these were either poorly distributed or else the dealers used poor judgment in not giving them prominence in their stores. A little more publicity on some of the finer programs would quickly revive interest on the part of the fans who have been on a radio vacation during the summer and would bring many new fans into the fold.

Let's help the broadcasting stations and at the same time help ourselves.

The Show Season Is On

While some radio shows have been held from time to time during the summer, the big show season is just coming. Most of the larger cities have made plans for shows beginning with October and November and further plans will doubtless mature later on so that we shall have shows pretty much all winter.

It is likely that these shows in the larger cities will be generally supported by the manufacturers of equipment but it will not be possible nor would it be profitable for them to hold a show in every city in the country. The smaller cities really need the shows as much as the larger ones and it is really up to the dealers to promote and stage these local exhibitions. Manufacturers will gladly assist in many ways and the interest aroused will be of great local benefit.

If no show is planned for your city, why not get together

with the most prominent of your local radio dealers and start things going? Send letters to the manufacturers of equipment you sell and ask them for suggestions and for their assistance in planning the exhibit and perhaps some of them have specially prepared models, plans, decorations or literature that will do much to put the show over in a big way.

The NATIONAL ELECTRAGIST stands ready to give every possible assistance to electragists who desire to get behind a local dealer show. We should have five hundred local shows this winter. If you are planning a show, let us know about it and we will list it.

More Stations Increase Sales

With the constantly increasing number of broadcasting stations there is a somewhat new development in the use of receiving sets of the simpler and less expensive sort. Where formerly the stations broadcasting on the same meter length were sufficiently far apart to cause no trouble, now with two or more stations broadcasting in the same city and often at the same time, the problem of the owner of a small receiving set has become a little more difficult.

Last year it was not much of a trick to make a simple crystal set out of almost nothing and get results. Many were made of tapped wire coils wound on match boxes, oatmeal boxes and the like, simply attached to an antenna and the receivers.

Little satisfaction results from such a simple set now with the greater amount of broadcasting and messages on

the air at the same time. These owners will need more equipment to properly tune their sets or they will need better sets. Once a fan, always a fan will aptly apply in the radio field and now is the time to talk to these customers and sell them what they need for satisfactory receiving.

Another angle to the increase in the number of broadcasting stations is the variety of entertainment and instruction that is available for selection. This should be taken advantage of in merchandising radiophone sets and parts.

Make "A radiophone for every home" a reality.

Tin Pan Radio

Grasp the nose firmly between the thumb and finger and try to pronounce the above. This is about the way some of the loud speakers installed in stores sound.

And these dealers are trying to sell radio!

It is perfectly possible to secure good equipment to seek public favor, and having good equipment it is possible to operate it in a way that will be pleasing to the ear.

Such squaking receivers do more harm than good and should be eliminated. They not only retard the selling of radio equipment but they are a public nuisance and sooner or later they will be ruled out by police officials.

It would be a splendid idea if all dealers and manufacturers would get together to eliminate this kind of sales obstacle. If the stores really do not know what the trouble is, they should have assistance. If they are filling the air with these weird noises they should be silenced and silenced quickly.

Christmas Time is Selling Time

It is Not Too Soon Now to Think of the Possibilities of Radio Equipment as Christmas Presents—Prepare Now With a Suitable Assortment of Stock, Letters and Displays

It may be a little early for the general public to be thinking about Christmas, but even now, people are looking around to avoid the inevitable rush of the Christmas shopping season. Several department stores are carrying advertising about wares that are specially priced now and which would be good buys for Christmas presents.

It is not too early for the jobber and dealer to be thinking of Christmas with its great selling possibilities. It is only a little over two months and there is much to do in planning a Christmas campaign.

It is not quite timely to decorate the store with holly and greens but much preliminary work can be done in looking over stock, securing a number of leading articles that will move best for the purpose and in sending out letters to lists of possible buyers. Other advertising matter such as catalogs, leaflets, and local newspaper advertising can be prepared now and Christmas win-

dow displays can be worked out in detail so that you will be all ready to go.

Then there is a holiday in between that is not strictly a present giving time but which should be anticipated. That is Thanksgiving Day.

A great deal of work is going to be necessary to swing some of the Christmas money toward the radio industry and the dealers will have to do most of this work. It is generally accepted as a fact that handkerchiefs, neckties, jewelry, musical instruments and gold pieces make acceptable gifts. It has not been generally accepted that pieces of electrical equipment or hardware or shoes or articles of that character are good Christmas presents. The dealer through his window displays and through his local advertising, circular matter and letters must impress the public with the fact that radio equipment makes a good Christmas present. Here is a sample letter that might be altered to suit circumstances and sent out to your list:

DEAR SIR—

It is only about two months till Christmas and during these two months you will be making lists of presents that you intend to make to friends and relatives. In making your selections, please do not overlook the amusement and entertainment to be derived from the radiophone.

The great progress that has been made in the development of wireless in the last two years makes it possible for you to listen in on grand opera, dance music, market and commercial reports, sporting news, special lectures and instruction and other features no matter where you are located.

Unlike many other entertainment features, once radio is installed there is practically no upkeep expense. With small crystal sets there is absolutely no further cost and in the larger sets the occasional charging of a battery and the infrequent replacement of a vacuum tube constitute the only necessary expenditures.

May we suggest that you consult us, stating your requirements? We will be glad to recommend equipment to suit your needs at a very moderate cost.

Yours very truly.

A letter like this will serve pretty well to introduce the radiophone subject and this could be followed by several others explaining the possibilities, costs and

limitations of various sets. The subjects of these letters might be:

1—A non technical explanation of different types of sets, their range limitations, etc.

2—How loud speakers can be used to increase the usefulness of the equipment and to what types of receiving apparatus they can be attached.

3—Why the young boy is interested in mechanical and electrical things and how the study of wireless will prove at once fascinating and instructive to him.

4—Why the radiophone is of interest to women. Some of the broadcasted subjects—styles, housekeeping, etc., that would make the receiving equipment of as much interest to the feminine mind as the masculine.

How to Get Mailing Lists

Every electrageist handling radio apparatus should have a mailing list to which he should send periodical letters, folders, or catalogs or special announcements. There are a number of different ways of making up such a list. Here are some of the easiest ways:

1. If your store is in a town of less than 30,000 population, you can use the telephone directory for your list. You will not want to include stores, factories or offices. Therefore in copying the list, use only the names with "r" after the names, signifying "residence." This will almost automatically give you a list of the people best able to buy because the very fact that these people have telephones indicates that they are the cream of the population as far as buying power is concerned. True, many who do not have telephones will also be possible buyers, but an attempt to reach them by bulk or blanket methods will not pay any profit. If you will copy these names on a card index and keep it corrected, you will have at all times a complete and up-to-date list of the best prospects in town. Corrections to a list are made by personal information that comes to you, local personal items in the newspaper and mail returned by the post office on account of removals. No list is ever 100 percent correct because people are always moving about.

2. Another excellent way to compile a list is to have a sales register on the counter. Every sale that is made in the store is entered on the register and you particularly ask the customer for his or her name and address. These names can be taken off every night or every week and added to a card index. Corrections in address will also come automatically. Sometimes people will hesitate at giving the information and you can generally answer this by saying that you stand back of everything you sell and if there is any dissatisfaction that

you want to have a record of the transaction. There is always a response to this and you are not promising anything that you would not have done before. This idea can be carried a little further if desired by listing on the card the kind of equipment bought or the amount of money spent by each customer. You could later make a list of those who have bought crystal sets and try to sell them tube sets. To those who have bought tube sets you could write a letter calling attention to better sets, more equipment or the advantages of the loud speaker.

3. Every new house built in the town should be a prospect for a radio receiving set. As an electrageist you will probably be seeking the electrical installation anyhow and you could list all such building operations from the permits issued by the city officials. Even though other contractors get the electric installation, try to sell a receiving set and make a flat price on installing it. In larger residences it is sometimes possible to install additional telephone receivers in the various rooms to put the set in the attic or the cellar and wire from there to the headset or loud speaker, and so on. There is no limit to the possibilities of radio equipment provided the purchaser is able and willing to pay.

4. If you are in a very small town and want to list someone in every house, you can use the assessors list or election lists which are generally available. In some of the smaller towns these lists are published in the local papers once or twice a year.

5. If you are in a very large city it would not be profitable to you to take all names on the telephone list for your circular promotion unless you have a large store in the shopping or business section of the city and can reasonably expect that the majority of these people will be in the vicinity of your store at some time in the near future. Even if you have such a large store it would probably be more profitable for you to spend the same amount of money on a good advertising campaign in the daily newspapers, in theatre and moving picture programs, etc. The problem of making a good list for a definite section of a large city is a difficult one and generally does not pay for the trouble. The same amount of time spent in careful show window decoration and changing will bring more business through transients who just happen to be in the

neighborhood and dropped in on the strength of the display. The counter register method of recording names of customers would in a few months give you quite a good list of those in the section of the city that you can figure on as repeat customers.

Holiday Windows

In planning holiday windows, stick as far as possible to sets. Try to have one "leader" in the window, this being preferably a moderate priced vacuum tube set. Two or three other sets, lower and higher in price could be set off a trifle less than the feature set. Placards, giving the price, range and brief specifications will help in making the contents of the window understandable to those who have not yet investigated the mysteries of radio communication.

One feature that always attracts attention is a model. It would not be a tremendously difficult job to construct a tiny model receiving set out of bits of wood, paper and pasteboard, painting them with black, red, aluminum and gold paint. The tiny antenna could be shown installed and the house could be, for instance, a doll house. Dolls could be used as the figures. This is a catchy method and then, the attention once arrested, be sure to have something else in the window to draw the attention over to the fact that you have something to sell.

In preparing for the holiday trade be sure to pay particular attention to the packing of the articles. Various size heavy pasteboard boxes or cartons are almost a necessity. If the gifts are to go to some other house than that of the purchaser, the various articles will need to be in one package and so packed that they will not break or become damaged. A bulky, odd shaped package done up in brown paper with string that will not stay in place detracts from the value of the apparatus as a welcome Christmas present.

New York Radio Exposition

A radio exposition of national scope is planned for New York City in December. It will be held in the Grand Central Palace the week of December 21 to 31. This building is one of the largest and finest exhibition buildings in the world and annually houses the National automobile show as well as the chemical show, furniture show and many other shows of national character. It is planned to make the radio show at the Palace an annual event.

Why Receiving Set Prices Are Going Down

By J. GEORGE FREDERICK

An Interview With Well Known Merchandising Expert—President Business Bourse, Int. Inc., Author "Modern Salesmanagement," "Business Research," Etc.

As the consultant and merchandising counsellor of several important radio firms, J. George Frederick has had an opportunity to delve into the increasingly difficult problems of radio merchandising. His book on salesmanagement is a standard guide to sales lore in this and foreign countries. After having made several exhaustive researches on radio merchandising Mr. Frederick has some decided opinions.

"In the old automobile days," he said, "nobody but a crank like Henry Ford saw the price situation in relation to real destiny of the automobile. But today there is no lesson so well learned by good manufacturers. The market for both radio or automobiles is like a great pyramid; at the broad base is the great mass of people and their low income; and at the peak is the small number of those with riches.

With tube sets at \$150 and over (complete) the radio market is high up on the apex of the pyramid. It is distinctly limited; although the market for handsome cabined sets is in my opinion very splendid for a few worthy manufacturers. To be the Packard or the Rolls Royce of the radio field is a sound ambition; but to be the Buick or the Ford or the Dodge or even the Studebaker of the field is a real man's size business enterprise which has not yet been undertaken in the right way.

The Downward Trend Expected

I am firmly convinced that the public should be able to buy complete, a 2-stage tube set for \$60 to \$75, tubes, batteries and all; with high quality of service. In fact I predict it will be done eventually for considerably less. Naturally this will be an evolution.

To such radio manufacturers who have consulted me concerning the problems of radio selling, I have outlined the vital choice clearly, the choice of making de luxe goods or of making an article which by high class manufacturing as well as wise selling methods would clear the path to its own market by reason of quality at a price. A large syndicate not long ago confirmed my judgment by coming to me to help find a very good low price set. They said they were willing to back it financially if it were the real thing.

The maintenance of the radio industry at a point where there will be no business for all the many who are in it now demands low priced, dependable tube sets.

While business is good this fall, the competition is enormously keen; prices are cut to the bone by retail competition; and only the manufacturer who has looked ahead and planned his merchandising situation wisely is able to hold up his head and make a good profit. I never saw a field of industry so full of mere boys or sheer novices at large scale selling; the grim reaper is going to get many of them—has already got many. Radio is a real business, not a '49 gold rush. It will not operate on anything but the long tried laws of business; and the merchandising end of it is the retail end.

Don't Get Wrong Idea

It is wrong in principle merely to sell cheap; the dealer and jobber must make a real profit, and the manufacturer must have a real profit and use first class material and labor. There are

plenty of cheap sets today—the market is filled with cheap goods; but either a lot of people are working for nothing or the workmanship, material and service are not in these goods. There is only one businesslike solution to make good goods in such quantity and on such a high plane of service rendered that the price competition will be beaten at its own game.

The prevalence of cut price in radio indicates unmistakably a real public desire for lower prices; but not lower quality and service.

There is a market for 1,000,000 tube sets in sight at once if a two stage tube set of high quality will be made and soundly merchandised on standard high grade business lines, at a price of \$65 (exclusive of tubes and batteries). There is a market for 750,000 sets at \$70, a market for 500,000 at \$75.

It must not be supposed that the tendency towards lower prices is necessarily towards cheap and unreliable quality. It certainly appears open to that suggestion at present; if some of the merchandise which is being put out



Value of a radio outfit in the business office—Stock exchange quotations, weather, market and crop reports come in daily, and the radio set shown, housed in a handsome cabinet, serves the purpose of a ticker. The outfit carries a loud speaker inside so that headphones are unnecessary. The use of such handsomely cabined sets in offices opens up a wide possible market

is a criterion. One of the surprises, however, of the radio field as it stands today is the amazing difference in quality for the price which is on the market. Both good and bad merchandise sells for the same price whether high or low. This is a clear proof of the fact that many of the concerns in the field are either highly inefficient or do not know their costs, or both. Under any circumstances the price situation is an index to the tendencies of the field, and many of the lower priced merchandise manufacturers are simply catching in their net a number of customers to whom nothing but price will appeal at the present moment. Too much is taken for granted by the majority of radio buyers.

The Junk Manufacturers

Those hundreds of thousands of owners of crystal set who are now glad to

be turned into tube set owners and are gingerly setting about to buy tube sets are being met eagerly by these manufacturers of pure junk; and of course the customer is due for another disillusion. Warnings have properly been given by radio periodicals to the public about buying sets too blithely; but the point to be emphasized here is that the public is naturally in a quandary, when on one hand it is being offered 2 stage tube sets costing anywhere from \$85 up to \$200 and more, and on the other hand is offered cheap unit tube sets at as low a figure as \$18 and \$20 or less thus making a two stage set possible at a price of less than \$35 minus tubes and battery.

Grant that a lot of this merchandise is so-called junk. Nevertheless it does not follow that makers of the high priced stuff, which has nothing to offer

but the standard two stage equipment, without any particular embellishment in the way of cabinet or striking new improvement of any consequence, are wise in maintaining so high a level of price. There appears to be little principle or sound policy in the price making in the radio field as yet, and the consequence is a price chaos.

There are one or two indications, however, that the Ford idea of manufacture and sales is coming into the radio field, and the consequences are certain to be great. In any article selling into the millions of units as radio is, the policy of large scale manufacture, dependable quality, and small profit is the winner; and this makes it certain that radio outfit prices for sets of the ordinary kind must come down to an average level well within popular means.

Radio Music Instead of Noise---Today's Need

BY PERCE B. COLLISON

Following Article Printed Through Courtesy of "Radio Broadcast" Tells Why This Business Should Be Handled by Electragists

The facts brought out in this article will interest the three groups most interested in radio telephone broadcasting. First the broadcaster, then the merchant who is entering upon an entirely new field, that of demonstrating and selling radio apparatus, and last but not at all the least, the general public—the consumer.

Radio telephone broadcasting is epochal and is here to stay, but we must concede that much must be done to bring it to a point where it will approach perfection.

Our congratulations and thanks to KDKA, WJZ and those other splendid pioneers, but unfortunately there are many individuals operating inefficient and poorly designed equipment, more or less conglomerate collections of miscellaneous parts assembled by persons with a rudimentary knowledge of radio telephony.

For example, the writer has been listening to a certain broadcasting station for a couple of months and was thoroughly disgusted with the quality of their signals and their programs. The operators of this station frequently ask for comments on their signals and usually at the close of their evening program acknowledge with thanks the many complimentary letters and telephone communications they have received.

But their efforts do not deserve such praise and it is suspected that they receive no such compliments, or that if they do they come from poor judges.

On a certain evening a piano selection was being rendered in a wretched style and I was goaded into calling these people by telephone and protesting. A young man answered the phone and in response to my unwelcome criticism he

up another better station and let him listen to some good signals. This finally convinced him that his station was greatly at fault and he promised to do better. But did he? He did not. Night after night they continue to flood the ether with squawkings that bring unpleasant remembrances of the old tin horned gramophones. This stuff, for that is all the title it merits, will dis-



Isn't There Some Suggestion Here as to Why Radio Has Proven the Slough of Despond for Certain Electrical Dealers?

stated that he was surprised to learn that their signals were poor and asked for suggestions. I explained what I thought was wrong and to demonstrate what I meant I placed the transmitter of the telephone a few feet from my loud speaker and let him drink his own poison. He was inclined to believe my receiver was at fault so I picked

courage thousands of prospective purchasers of radio telephone receiving apparatus and should be ruled out of the ether.

These and other malefactors, even though they may be operating with the best of intentions, are arousing a storm of protest and harsh criticism that will react against every broadcasting station

'True Gold,'
said Confucius,
'does not fear the fire'
— and
"Grebe Radio
survives the most
exacting tests."

Doctor Wm.

IF you are like most radio dealers, your problem has been to *get* Grebe Radio Apparatus. Selling it has been no problem at all.

You have seen the rise and fall of radio apparatus hastily produced to fill the unprecedented demand the past year has seen. Now is the time to put your house in order. When the radio fan buys this Fall he will make it his business to obtain apparatus that has stood the tests of time and service. If you cannot supply him a more progressive competitor will.

Grebe Apparatus has a reputation of twelve years' standing. During that time our sales have enjoyed a steady growth. We are now ready for more outlets. Our splendid new factory assures prompt shipments.

Our sine curve will bring the worth-while trade to your store. Let us tell you what has been done with Grebe Apparatus to build sales and satisfied customers. Write us.

THERE are a few territories where we have not yet appointed distributors.

A. H. GREBE & CO., Inc.
86 Van Wyck Blvd.
Richmond Hill, New York

Grebe Radio Apparatus
is
Licensed under
Armstrong U. S. Patent
No. 1,113,149

in the country unless something is done to improve their programs. Their main fault lies in imperfect modulation and wrong methods of recording. As a general rule a single voice singing gives much better results than a chorus. Likewise a few stringed instruments sound better than an entire symphony orchestra. Jazz bands are an abomination and should be absolutely eliminated, not because the public does not like jazz but because the scrambled mess of disjointed harmony that is jazz just cannot crowd into a telephone transmitter, with the result that all the public hears is a babel that bears no resemblance to music. What the public wants is music, not excitement!

Piano music if used at all should be carefully chosen and then played by an artist. Canned music is not wanted, that of phonographs or any other instrument. We all have our share of good phonographs and player-pianos and they give us much better music than has ever been broadcasted by radio telephone. The writer has listened to a score of piano concerts and has noticed one particular fault. In many compositions certain softly played portions are hardly audible and then when the artist crashes in a grand finale the telephone diaphragms go crazy. Something should be done to keep the volume more even, if necessary instruct the recording artists not to play either too softly or too loudly. Impress upon them that there are certain limitations to a radio telephone transmitter and let them keep within those limits. Artists when making phonograph records must observe certain rules, and radio telephone broadcasting should be governed by similar rules.

Speeches! Unless the speaker has a message to deliver that is of great importance or of assured public interest he or she should neither be asked nor permitted to bore several hundred thousand people with some lengthy discourse on abstract subjects. Propagandists, politicians blowing their own horns, well meaning but terribly uninteresting welfare workers, rabid attacks on city or state governments—these and others of the same type—please stop them. Give us authentic briefs of the day's news, crop reports, information regarding the science of agriculture, fashion and house keeping hints for the women folks, sporting news for the young folks, perhaps a bed time story for the children once in a while, and then only in fifteen minutes doses. Every program

every day should be planned to be of some interest to every member of the family, else interest will lag. The present rush to buy radio telephone apparatus is the result of clever press agent work and its decided novelty. If this interest becomes dulled because of uninteresting broadcasted programs the industry will suffer throughout.

The general public has purchased receiving apparatus to be amused and interested, and if the broadcasting stations do not maintain a high standard they will defeat their own purposes.

So much for the broadcaster.

Now I am going after the merchant.

Just recently the writer was walking along a busy street and observing a crowd in front of a building a few blocks away, and being possessed of the usual amount of metropolitan inquisitiveness he decided to investigate. Upon approaching the crowd he was greeted with a babel of noise that sounded like the wild whoops that are showered upon Babe Ruth when he swats another ball into the great beyond. The cause of all this commotion was a loud speaker connected to a radio telephone receiver. The assemblage was not at all impressed with this free concert, but on the contrary there were many murmuring and quite a few loud spoken comments to the effect that "If that's this here radio that the papers are talking about I don't want none of it."

And right at this minute there are hundreds of such unconvincing demonstrations of radio telephone broadcasting being perpetrated upon the suffering public, and I say it's a doggone shame. Not one persons in that large crowd would offer anything but a cold response to any attempt to sell them a radio telephone receiver; indeed any such attempt would have met with instant ridicule.

Being an enthusiastic radio bug and having several friends in the business of manufacturing and marketing radio telephone apparatus, the writer decided to remedy this deplorable condition and to do so at once. Elbowing his way through the crowd he bravely walked into the store and politely asked for the proprietor. A peccolous youngster in his late 'teens said that the boss was out and volunteered the information that he did not want to buy anything as business was rotten. It sure was. He was then asked if the concert which he was thrusting upon a wholly disgusted but unmistakably curious crowd was bringing in any results. To this he replied in perfect

metropolitan slang "Naw, those eggs are just stickin' around for the baseball scores and as soon as I cut this stuff they will beat it." It was a wonder to me that those eggs would stick around at all. But it was a true demonstration that the public is interested in radio, and it will take a whole lot of abuse to drive them away from it. Surely we do not intend to make any great effort to drive them away, do we?

Standing upon the counter was a radio telephone receiver of honest parentage connected to a well known loud speaker. The writer knew that these two units could give considerably better results, and thereupon decided to adjust that receiver so that it would no longer defame the good name of its creator. While the youngster stared and protested the proper adjustments were made, and as if by magic the blare disappeared and in its stead there came from the horn of the loud speaker a decidedly good reproduction of violin music played by an artist of no mean ability. The signals were coming from one of the best broadcasting stations in the country, and with a little fine adjustments the music cleared into an almost perfect reproduction. The crowd was visibly impressed and crushed closer to the store in order that they might not miss any of this musical treat. Three or four serious minded individuals separated from the crowd and came into the store in order that they might get even closer to the instrument, and they were just bubbling over with enthusiasm and questions—and more kept coming. But alas the clerk was no nimble wit and failed to grasp the golden opportunity. He was more frightened than anything else. And his boss was probably wandering around trying to sell out the business and cussing at himself for having ever entered the radio game. Having no further interest, I sneaked out, leaving the store and its prospects to fate.

When will the newcomers into radio merchandising realize that the selling of radio telephone apparatus requires at least as much knowledge of the business as that usually at the command of a live wire automobile salesman? Or are they relying upon the present craze to offset their shortcomings? And coupled with this rudimentary technical knowledge should be a real ability to tune in stations and thereby give a creditable demonstration. I have had several of these merchants try to sell me apparatus, and they all go through

Hook Your Radio Sales to this Revolutionary Battery Principle!

You can give permanent satisfaction to your customers and build up enduring good will for yourself by equipping all the radio sets you sell with Radiobats.

RADIOBATS are not merely batteries with improvements. They are built on radically new and different principles that put the old automobile type "A" battery and dry cell "B" battery out of date.

Radiobats, both "A" and "B," have nothing to leak. They contain the first successful and semi-solid electrolyte. This revolutionary principle plus the rugged strength of the exclusive Radiobat reinforced grid has made the use of any kind of separators unnecessary.

Radiobat "B" is a genuine 22 volt storage battery which is rechargeable at

home from either A.C. or D.C. It is compact and rugged. Most important of all—it is utterly noiseless in operation.

Radiobat "A" is smaller, lighter in weight and easier to handle than any other "A" battery of equal rating. It maintains a steady discharge rate throughout its entire life.

"A" and "B" Radiobats used together form "The Permanent Radio Power Unit." Any standard radio set equipped with Radiobats will give a new experience of dependability and complete satisfaction with radio.

The Radiobat policy is to distribute through radio stores and not through service stations. You should have the radio battery business service stations are now getting. You can get it with Radiobats—designed exclusively for radio use.

Radiobats have the backing of a tremendous national advertising campaign—the most powerful in radio. Prices are fair—discounts liberal. Write or wire for complete description and outline of sales plan.

Multiple Storage Battery Corp.
352 Madison Avenue, N. Y. C.



"A" and "B" RADIOBATS
The Permanent Radio Power-UNIT

the same performance. After making a few introductory remarks intended to impress upon the prospective purchaser that the particular piece of apparatus they are selling is so superior to anything else on the market that they are inclined to pity their competitors, they point out a few of the points of superiority. These usually are unimportant details such as the design of an adjustment handle, the finish of the panel, but never do they go into the technical design of the instrument. Why? Because they don't know anything about it, or if they should happen really to understand something about the goods they offer they do not know how to explain these things. With the proper use of analogies I can explain the operation of a radio telephone receiver to an intelligent boy twelve years old. If he does not understand me, I stop trying to sell him anything because he is going to be a perpetual source of annoyance to me after he buys. Then comes the demonstration, the execution and torture I should say. These people seem to think that the public wants quantity and not quality even in music—they are all wrong. We have been well educated to good music by our phonographs and the excellent symphony orchestras at the leading motion picture houses, and are not going to be impressed with anything less satisfying. They sizzle the filaments of vacuum tubes, jam in the tickler coupling until the telephones howl with rage and then beam upon you expecting to see you become joyfully enthusiastic and buy the whole store. Do you do it? Well, hardly.

A well known radio engineer recently remarked that by careful compilation of the reports he had received he had concluded that there were eleven radio engineers in this country and no less than 350,000 radio experts. I say to you beware the radio experts. Whence came they? Are they the aftermath of those hurriedly and half trained radio operators that were pressed into emergency service during the late war? Every store selling radio supplies now has its radio expert. The newcomers into radio merchandising are too quickly falling prey to these experts. Perhaps if radio apparatus were not being offered for sale by haberdashers, stationers, drug stores, etc., these experts would not find so many soft berths where they can prey upon a credulous and mystified public. If manufacturers were not so anxious to flood the country with apparatus and make a quick profit

(and perhaps an equally quick get-away), and restricted their agencies to electrical dealers, *bona fide* radio supply houses, and other agencies equipped by training and personnel to distribute technical apparatus, this evil would be automatically corrected.

Automobile manufacturers demand that their distributors maintain a service and repair station. The general public has a great deal to learn about radio apparatus, and unless helped along by intelligent service, there will be a reaction more violent than the original boom.

Now for our friends, the general public, without whose support and good will we cannot maintain anything. I suggest that you purchase only that apparatus that is trade-marked by reliable and well known manufacturers. Avoid the unknown outfits. Perhaps they may appear to be cheaper at first, but the usual thing is that the purchaser is either disgusted with the results or decides to replace them with proper equipment. In any case the original purchases represent financial loss. Having acquired a standardized well engineered piece of apparatus, follow the installation instructions and operating suggestions usually given by the manufacturer. Take no advice from any other person unless you have learned by previous experience to respect his judgment. The manufacturers will gladly

answer questions, and it naturally follows that they are the best source of information for their own products.

Regarding accessories. Do not purchase any additional equipment that may be suggested by a zealous salesman until you are sure that you understand its proper application and that you really need it. Many a well conceived piece of apparatus has been either ruined or rendered ineffectual by an attempt to improve it. The manufacturing engineers usually design each and every element for a particular purpose and to work best only in conjunction with certain other elements. Substitution for any of these parts usually results in a loss of efficiency. Wait until you are thoroughly familiar with the apparatus you have and are certain that it is not operating to best advantage before you begin to tear it apart.

In conclusion let me assure you that I have not intended to appear pessimistic or unreasonably critical but just brave enough to state frankly what hundreds of us are murmuring to ourselves and to our immediate friends.

This radio broadcast proposition requires the closest kind of helpful and friendly coöperation during this trying period of its development, and if we all honestly endeavor to do our share it will be quickly brought to a high degree of perfection, and then surely we shall have music and not noise.



Fall Time is Radio Time. As the Nights Begin to Lengthen and the Cold Begins to Strengthen You'll Find That Radio Will Have Even a More Rapid Turnover This Year Than it Had Last



*Tungar advertisements
appear in leading radio
papers*



Be ready to sell Tungar this fall

With the reawakening of popular interest in radio concerts this fall when cool nights bring in strong signals and the home fireside seems more inviting, battery chargers will again be in demand.

Tungar Battery Charger

is not only a device proved by years of satisfactory service, but it is well advertised to those who ought to have it.

Besides the attractive window display pictured on this page (so arranged as to tie in well with a showing of radio goods), booklets for consumer distribution are supplied, and consistent, steady advertising has already begun in Popular Science Monthly, Q.S.T., Radio News and the Wireless Age.

Tungar dealers now receive the most complete line of sales helps offered by any manufacturer of radio material. Ask the nearest G-E distributor, or write for prices and discounts to Merchandise Dept., General Electric Company, Bridgeport, Conn.



Tungar
BATTERY CHARGER

One Battery Tungar Charges 3 cells at 5 amperes. Also (with simple attachment) charges storage "B" batteries.

General Electric Company
General Office
Schenectady, N.Y.
Sales Offices in
all large cities

35A-68

The Meaning of Radio and Its Possibilities

By DAVID SARNOFF

General Manager of Radio Corporation of America Delivers
Important Address Before New York State Convention

Radio is a very general subject and one can begin early in the morning and talk about it until late at night and still leave uncovered a considerable part of the subject. Radio is all embracing. It covers the ocean, the air; it is even applicable to moving vehicles.

Until recently we regarded radio as having for its principal function that of sending messages between two points without the aid of wires. Its work in the ship to shore department you are all familiar with. It operates as a factor of safety. Practically every ship of consequence today is equipped with radio. You can speak to friends, business associates, or others while they are on the ocean. You can speak to the Orient by radio, but the radio in which you are principally interested, the radio which is applicable to the home, is a recent advantage comparatively speaking. It has made its debut only within the past year.

A great many of us who spend our lives in radio have dreamed of the time when it would be possible for the human voice to be transmitted to the home without the aid of wires. The realization of that dream first required perfected transmitters so you might understand speech clearly and take advantage of the means of amplification and other improved factors better known to the technical world.

All these matters reached a state of practicability only during the last year or two, when the Westinghouse Electric & Manufacturing Company conceived the idea of providing an organized service of broadcasting from radio transmitters, and sent out daily and nightly concerts and lectures and other features which formed a part of the broadcasting program. Radio broadcasting spread like wildfire and the popular response from all over the country was overwhelming.

Recent Conditions Abnormal

The Radio Corporation of America, with which I am associated, has during the past six months lived through a period which I doubt any industry in the world has had to deal with. From the business which last year in the matter of sales amounted to about one million dollars there suddenly grew a de-

mand for apparatus and equipment of all kinds until the figures were unusually high. In fact, only our own efforts to keep down these figures to avoid future misunderstandings with those who had failed to analyze the situation kept those figures down to reason.

The Radio Corporation of America today is committed to a program of production amounting to over twenty mil-



David Sarnoff

dions for the year at our costs, as distinguished from costs to the consumer. This is a tremendous undertaking in a new and rapidly changing industry, in so short a period, when as a matter of fact, the entire business of the Radio Corporation, including all its communication and miscellaneous activities, amounted to something in the neighborhood of four million dollars last year. It may appear that such a quick swelling of figures is evidence of prosperity. I hope it is, but it also carries in its wake a great many risks, difficulties, and responsibilities which one must face.

I would like to tell you something of the Radio Corporation, what it constitutes, and then proceed to a discussion of what I regard to be the function of the dealer or electrical contractor, in this business.

The Radio Corporation of America was formed early in 1919 as an outgrowth of the desire of the American government to have American enterprise control radio communications which had assumed so important a position in the destinies of the world.

Great Britain Big Factor

As you know, communications are a vital part of world intercourse. In fact so important is that element that the British empire, which is a colonial empire, has controlled the cables of the world. More cables are owned by Britain than all other countries combined. In fact it controls what amounts to almost a monopoly of the materials which enter into the manufacture of cables, one of which is rubber which grows in India. So it was in 1919, or at the close of the war, that even the manufacture of cables was impossible without the permission of, or without obtaining the material from, British government sources.

The American government recognizing that Great Britain was in control of the communications of the world by cable recognized in radio a new method of international communication, which made possible not only what cables made possible but more. A cable begins and ends between two fixed points, but radio does not. Its waves can cover the world.

The American government, through the Navy Department, approached the General Electric Company, which at that time had developed some very important machines and suggested that the General Electric Company itself enter the field of radio communications; a request which the General Electric Company responded to but which involved recognizing certain patent rights of the American Marconi Company, which for many years was engaged in the radio business in the United States but which through stock ownership was largely controlled by the British Marconi Company of London.

The Radio Corporation is now controlled by the General Electric Company, the Westinghouse Company and the United Fruit Company. Until recently the American Telephone and Telegraph Company and the Western Electric Company owned a part of the stock, but recently the A. T. & T. disposed of its stock, but continued as an associated company under a contract which provided for an exchange of licenses under patents, which contract runs for a long period of years.



==QUALITY & SERVICE==



RADIO PROFITS

Belong LOGICALLY in the ELECTRICAL BUSINESS

RETAIL RADIO PROFITS

Belong EXCLUSIVELY to
ELECTRICAL DEALERS

There is at Least ONE Responsible and Progressive Dealer in Each Community We Will Associate with Us in a Successful Plan to Keep

RADIO PROFITS

Where They Belong—In the Electrical Trade

ARE YOU THAT DEALER?

WORLD RADIO CORPORATION

EXECUTIVE OFFICES, LABORATORIES, WAREHOUSE

423-439 West 55th Street,

NEW YORK, N. Y.



==QUALITY & SERVICE==



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Radio Corporation's Wide Influence

Back of the Radio Corporation stand the research and engineering facilities of the General Electric, Westinghouse, Western Electric, and American Telegraph and Telephone companies. So you can see it is a national and worldwide organization, and has behind it a program of activity not alone in the matter of sales but also of communications.

It has built and operated stations on Long Island, New Jersey, and on the Pacific Coast, which provide direct communications between the United States and Great Britain, France, Germany, Italy, Norway, Hawaii, Japan, and proposes extensions to South America and China. Our slogan is "worldwide wireless," designated by the letters R C A.

On the Atlantic Coast, where there are seventeen cables in operation between England and the United States, the Radio Corporation operate four transmitting stations, and during the brief period of some two years of operation we have reached a volume of traffic between the old world and the new in excess of twenty percent of the total traffic handled by the seventeen cables across the Atlantic.

Now as to broadcasting: I have had the pleasure of talking during the past few months to the bankers, the manufacturers and the national distributors and jobbers, and many others concerned with radio, but I have not until this morning had the privilege of talking to the dealer himself, and it is a privilege, because after all, the elements which I have mentioned so far all seem to me to form the mere background behind the dealer, who is himself to deal with the public.

The two principal factors in any merchandising proposition are the manufactured product itself and the customer. In between there is a line of operators who depend for their existence and continuity entirely on the measure of service which they are able to render. The jobber is a jobber only so long as he performs a function, only so long as he does something useful.

The Electragerist's Function

But when we speak of the dealer, if I understand his function correctly, we are in fact speaking to the public, and if this is true I want to say to the gentlemen present, that I am not here to sell you radio. My problem today is not sales. I am not here to urge you beyond your own convictions, but I am here to tell you that having spent my business life so far in radio, I believe

that radio broadcasting is here to stay. I believe that its future is assured, that anything in the way of an obstacle be it ever so great at the moment will not stand in the way of ultimate success of radio, because back of radio is a service and an ability to do something which no other means of communication has yet been able to accomplish, and it is the ability to bring into the home, and to hundreds of thousands of homes simultaneously the spoken word, to bring into the home music, education and culture without the expenditure of a real amount of money on the part of the recipient of these services. For the first time it makes possible spreading out the walls of the home so to speak and letting in the culture and intellectual light of the world.

Everything in the home today is inarticulate except the people. Even the telephone, wonderful as it is, is confined to a particular person, but when you make it possible to merely press a button and listen to New York, Pittsburgh and Washington and other cities, and perhaps ultimately the world, when you make it possible to select a particular type of information you desire, you make it possible for the home to be a real place of amusement and culture and as I have said on a previous occasion, I believe the day will come when a man will no more think of failing to equip his home with a radio receiving device than a man would today think of failing to equip his home with a bathtub. One constitutes a cleanser for the body and the other for the mind.

Cause of Technical Imperfections

The technical imperfections of the moment are due largely to the way in which this tremendous business has started off overnight. There is a great deal of interference in the air, but our government is trying to correct that and when it succeeds there will be less interference.

There are a great many who manufacture without knowledge of radio. In the month of March alone in the State of New York there is claimed to have been organized 1,740 companies manufacturing and selling radio devices.

It is obvious that a great many of these people are to be unfortunately disappointed, but on the other hand it bears very eloquent testimony to the great stimulus which radio has given to industry at a time when most enterprises were at the very lowest ebb. When the industries of the country were looking for opportunities when sales were difficult, and in some cases impos-

sible as in the case of the phonograph, along came radio and created a demand much greater than the capacity of these apparatus concerns, created a demand which challenged the best brains of the country, and in fact, operated as a lifesaver because it stimulated not only radio, but many other industries as well.

The electrical store found opportunities not only to sell radio, but things kindred to radio—wires, cleats, switches, etc., all of which are parts of radio stations.

I think the difficulties of the moment will rapidly disappear. I look upon radio merchandising as sure to find its level in a reasonable course of time. I think also that before another six months will have elapsed the present situation of being in a market which cries for apparatus will change into a market where we will have to go out and sell, and the quicker this comes the better I will like it, because I think there is less danger in a situation where you have got to sell than a situation where everybody is trying to buy.

The situation offers an opportunity for analysis. When the demand is met, and it will be very soon, the question of who will best render the service necessary is the question which you gentlemen will have to solve for yourselves.

Element of Service Required

I can only tell you this—that radio requires a considerable element of service. It is not a perfect instrument. We do think, however, that in the short period of its existence it has made much more rapid strides than automobiles or telephones or phonographs for the same period of time.

It not only requires service, but in a number of cases also installation. I know of no one better qualified at present to do that job than the electrical contractor and dealer, but if he has to compete with the music trade he must do things that so far he hasn't been required to do, and that is to go out and sell and not consider the machine sold until it gives satisfaction; to find ways to maintain its operating efficiency; to give information and advice as to the amount and character of apparatus to be bought; and to find a way to sell apparatus on a part time basis, as I believe the ultimate radio set will be an instrument which will in the majority of cases have to be sold on an installment basis the same as phonographs. When you go into a market where you must sell your merchandise

JUST OUT!

Circle T Safety Switch

New Bulletin No. 4



It contains listing of the complete line of Trumbull Safety and Externally Operated Switches replacing pages 62-91 of Catalog No. 12 and all succeeding bulletins.

It represents the most complete line of Safety Switches on the market. Entire revision of catalog numbers. Divided into four sections, one covering A safety switches, interlocking catch, 30-1200 amp., 2-3-4 P., 250-500 V., 600 V., A.C., S.T.-D.T., Fusible—no fuse.

Section 2—Type C externally operated 30-200 Amp., 250 V., 500 V., A.C. This line is of lower cost and has no interlocking feature. The best punched clip switch on the market.

Section 3—Entrance switches on porcelain and slate base, 125-250 V., 2-3-4 P. As complete a line as can be found at a very low cost.

Section 4—Meter service standard type.

**BE SURE YOU HAVE YOUR COPY. IT CAN BE
OBTAINED FROM ANY BRANCH OFFICE
OR FROM THE FACTORY**



The Trumbull Electric Mfg. Co.

PLAINVILLE, CONN.

San Francisco

New York

Philadelphia

Chicago



you must find ways to finance the project.

The musical people sell phonographs on an installment basis and unless the electrical industry can find a satisfactory way to meet the situation I personally don't believe they will handle radio except in the matter of a cheaper grade of apparatus. That is your problem. I think the musical people have solved it with their merchandise. Probably you can if you haven't already done so.

Some of you have been handling radio up to the present time and have found cause to complain about lack of apparatus. I shall not take the time here to establish an alibi or tell you of my problems except to say that our policy has been and will continue to be that of no favors so far as we are able to distribute the apparatus which comes to us. A man who comes to us and places an order for one or two million dollars has no advantages over a man who places an order for \$25,000 in the matter of obtaining earlier deliveries. Of course we deal with distributors almost entirely. If you have had difficulty in obtaining the material from us we probably had difficulty in obtaining it from others, but the time is almost here when that difficulty will be history and a matter of the past. Even now there is no difficulty in obtaining the most important elements of radio.

World Series Broadcasted

A play by play report of the world series baseball games as they are played in New York early in October will be broadcasted by radio from the General Electric station WGY, at Schenectady.

A direct wire from the baseball parks to the radio studio will convey every play the instant made and without a second's loss of time will be relayed to the radio sending apparatus in Schenectady to be sent out to the thousands of radio fans.

Reports will start at least a half hour before the beginning of actual play. During this time, as well as between innings, interesting sidelights on the game will be given.

WGY bears the distinction of being the most powerful station in the country, and under ordinary weather conditions is often heard by stations on the Pacific Coast, so fans located in the four corners of America should be able to receive these reports.

Another Broadcast Station

A communication has been received from the Interstate Electric Company of New Orleans, La., advising that its broadcasting station known as WGV was not included in the list of broadcasting stations printed in September.

WGV is the broadcasting station of the Interstate Electric Company and the New Orleans *Item*. Unusually high powered apparatus is used which makes for the covering of long distances. Its wave length is 360 meters, used for broadcasting musical programs nightly, with the exception of Friday and Sunday. Baseball returns, agricultural reports, and weather bulletins are sent out every night, a wave length of 485 meters being used for the weather reports.

Newark Radio Show

The Second Annual Newark Radio Show will be held on the main ball-room floor of the Hotel Robert Treat on Oct. 4, 5, 6, and 7. The promoters expect it to repeat its successful performance of last April.

Silver loving cups will again be awarded the winning sets in the various classes.

New Station in Cincinnati

On September 22 the Crosley Mfg. Co., Cincinnati, Ohio, opened its broadcasting station WLW with an elaborate program. Cincinnati is one of the great centers of music in the country and the Cincinnati Conservatory of Music and the Cincinnati College of Music will cooperate to make the programs among the finest in the country. Regular news and feature programs will be broadcasted as well.

The plant is a very powerful one. Four 250-watt radiotron tubes will be used, two as oscillators and two as modulators, with the Heising system of modulation used in connection with speech amplifier. This speech amplifier will be composed of three Western Electric No. 216 A amplifying tubes, arranged with one connected to the microphone circuit, with its output impressed upon the other two, which will be arranged as push-pull amplifier.

Their output is impressed on two 50 watt radiotrons, operated back to back, or as the push pull system, while the output of the entire amplifier is impressed upon the grids of the modulator tubes. Normal radiation will be nine amperes, using the Hartley oscillating circuit.

This set also can be operated as a master oscillator-modulating outfit, using one 50-watt tube as a master oscillator, modulated by another 50-watt tube. The high frequency output of this unit will be amplified by one 250-watt tube, and its output, in turn, amplified by three 250-watt radiotrons. Sufficient tests have not yet been made to determine which will be the better method of transmission.

The antenna is 140 feet long, with an average height of 125 feet. This is composed of twelve wires on 23-foot spreaders. The four outside wires are doubled and the lead-in is a cage one inch in diameter and made up of 768 strands of No. 30 wire. The counterpoise is 60 feet below the antenna at the lead-in end and 90 feet at the other end. This contains 15 wires on 34-foot spreaders, the four outside wires being doubled as in the case of the antenna.

Sends Setting-Up Exercises

Setting-up exercises by radio, beginning at seven o'clock each morning, is the latest use to which the radio has been put. On September 5 a series of Weight Reducing and Weight Gaining Exercises for various members of the family was inaugurated and broadcasted from the Station WGI at Medford Hillside, Mass., as a regular feature of its program.

The object of this course is to place at the disposal of all radio users the most approved methods of securing physical efficiency. Three exercise classes lasting fifteen minutes each are held every morning. These personal efficiency courses are in charge of Arthur E. Baird head of the Department of Physiotherapy at Caines College of Physical Culture.

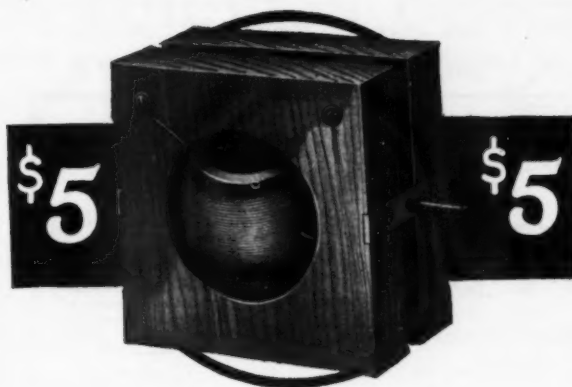
While this latest use for radio is entirely an experiment, being the first time such a course has ever been attempted by radio—in fact the first time a radio broadcast has been given at this hour of the day—reports indicate that the exercises are being tried by people all over the New England District.

The three sets of exercises are graded as follows: the first for the normal business man or woman who wishes merely a set of toning-up exercises; the second for those who are over-weight, and wish to reduce; and the third for those who are under-weight and wish to build up. The exercises are accompanied by explanatory talks dealing with all phases of personal hygiene such as diet, bathing, recreation and the like.

QUEENS Vario Coupler



QUEENS Vario Meter



**WE SELL THESE GOODS
TO YOUR CUSTOMER**

But we need a place where he can secure them quickly.
Let us tell you how we do it.

Write for our proposition

QUEENS RADIO COMPANY, Inc.

25 MEYERS AVENUE

WINFIELD, L. I.

RADIO PARTS

Knobs—Dials—Ear Caps—Strain Insulators—Etc.

"MEGOHMO" MOULDED INSULATION

METAL STAMPINGS

From Your Blue Print Or Samples

WATERBURY BUTTON CO.

Manufacturers Since 1812
WATERBURY, CONN.

OFFICES—NEW YORK

BOSTON

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EBY BINDING POSTS ARE NOW AMERICA'S STANDARD



Commander "H"



Commander "S"



Ensign "H"



Junior "H"



Ace



Sergeant "SS"



Sergeant



Buddy



Corporal



Midget

Radio Jobbers and Manufacturers
PLACE YOUR FALL ORDERS NOW!

THE H. H. EBY MFG. CO.

605 Arch St.

PHILADELPHIA

Station Heard South of Equator

KDKA, the radiophone broadcasting station of the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., first station in the world to broadcast concerts on a schedule basis and pioneer in feature broadcasting, has established a new record. It has been the first of the American radiophone stations to be heard south of the

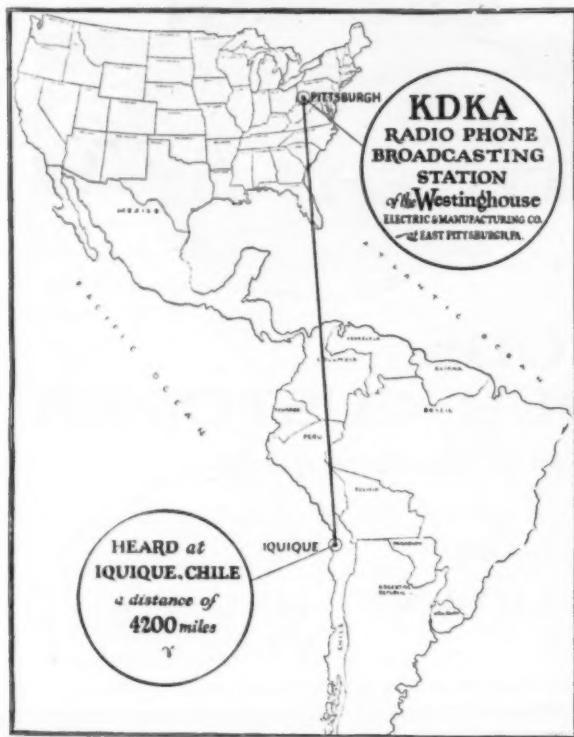


Diagram Showing Great Distance Reached

Equator, having been picked up by a ship operator while in the port of Iquique, Chile.

The news that KDKA had been heard so far south—Iquique is approximately 4200 miles from East Pittsburgh, Pa.—was conveyed in a letter written the radio division of the Westinghouse Company by Frank F. Reb, chief operator of the S.S. Santa Luisa, who caught the signals.

It is quite possible that other call letters, which Mr. Reb states in his letter sounded like WFD, were WJZ, the call of the Westinghouse Radio Corporation station at Newark, N. J. In any event Mr. Reb heard two Westinghouse stations, KDKA and WJZ, the same night, both of which are located over 4,000 miles from Chile.

KDKA, whose call letters are never mistaken, has made history in radio broadcasting. Starting as the pioneer every time a new feature was introduced it was usually KDKA, or one of the other Westinghouse stations which was responsible. Now that it has been heard over such an enormous distance, some of the predictions made as to long distance phone transmitting may not look so improbable. It appears that every day opens some new possibility for the radiophone.

Cockroach Discovered Radio

"Who discovered radio? Marconi? Nonsense! 'Twas the cockroach," says the *New York World*. The account reads:

We humans who have looked upon the insect world with tolerant pity are to be roughly awakened in this boasted

era of civilization, for it appears that even the lowly lightning bug and cockroach have for eons and eons been on terms of contemptuous familiarity with the greatest wonder of modern science.

Supercilious homo sapiens flatters himself that only he can talk to his kind across the ether. But it is now declared that when Marconi staged his first successful experiment, one lightning bug, spreading his antennae feelers, radioed to his mate, "Well, the poor boobs have learned the trick at last."

And the cockroach, attuning himself to the proper wave length, called back, "Hear! Hear!"

Hamilton Bailey of Peoria, Ill., a navy wireless operator in the war, yesterday announced that it's a radio that makes the lightning bug light; and in Harrisburg, Pa., Howard Zimmerman, National Guard Sergeant Major, disclosed the cockroach's secret.

Bailey's discovery is this: Lightning bugs are equipped with miniature audion bulbs, a broadcasting apparatus, low radio frequency, and a short wave length. The feelers are the aerial and the result is a radio light signal station.

As for the cockroach, Zimmerman made his discovery in his barracks in Luxemburg—that's the sort of barracks they were. Experimenting at night school with a quarter meter wave length, he found a cockroach with a wave length of half an inch and a very low frequency interfering with the human apparatus.

Further investigation, Zimmerman says, revealed that the despised insect is quite a little electric power plant. Believe it or not.

De Veau Silvertone Station Type Loud Speaker

The Silvertone Station Type Loud Speaker is used in places where it is desired to suspend the horn from the ceiling or mount it on a side wall. Two eyelets are furnished on the top of the horn so that it may be suspended from the



ceiling. In addition to this two brackets are furnished so that the horn may be mounted on a table or on a side wall. The horn is 20 inches long and the bell is 11½ inches in diameter. Made by Stanley & Patterson, West and Hubert Street, New York City. The price is \$25 including telephone cord and radio plug.

Radio-Art Receiving Set

This receiving set is designed specially for the reception of music and the voice as sent out by broadcasting stations. The circuit used employs a single tube audion principle and is claimed to give maximum strength to telephone signals with minimum interference from telegraph signals. The voltmeter is of the flush type and enables the operator

The Gillette Electric Clipper



"Gillette" model "1911" ceiling suspended Portable Electric Clipping, Grooming, and Shearing Machine.

Saves Time and Money

Clipping Horses, Mules, Cattle and Dogs.

Quickly and easily shears Sheep and Goats. Used extensively for grooming Horses, Mules and Cattle.

Operates from any electric lamp socket.

Send for price list illustrating our different types of Hand and Power Machines, also Hand and Toilet Clippers.

Gillette Clipping Machine Co.

123 W. 21st St.

New York City

REPUTATION IS BUILT ON QUALITY BERWICK SUPREME HEAD-SETS

Show sound mechanical and electrical construction, good materials and painstaking craftsmanship.

GUARANTEED 100% FOR EFFICIENCY AND QUALITY

Aluminum Cups 2200 ohms
Lightweight—Comfortable

WRITE FOR CIRCULAR G AND VERY ATTRACTIVE PROPOSITION

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New York City

JOS. M. ZAMOISKI COMPANY

The Electrifiers

Radio Building,

Baltimore, Md.

—DISTRIBUTORS—

Radio Corp. of America
Colin B. Kennedy Co.
Wm. J. Murdock Co.
The Magnavox Co.
Acme Apparatus Co.
Atwater Kent Mfg. Co.

Clapp-Eastham Co.
DeForest Radio T. & T. Co.
Chelsea Radio Co.
Burgess Battery Co.
Remler Radio Mfg. Co.
Nathaniel Baldwin, Inc.

PROMPT DELIVERIES

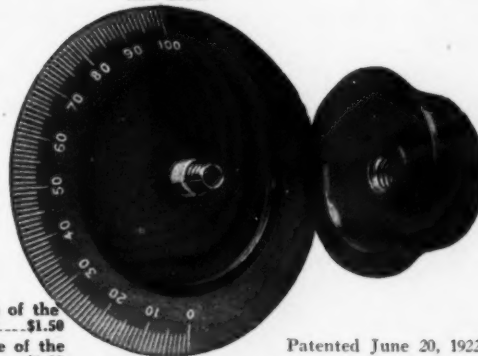
RADIO FOR SALE

Two or three beautiful receiving sets containing detector, amplifier, three tubes and beautiful mahogany cabinet at ONE-HALF of the list price. Anyone desiring a radio set that is efficient, compact and beautiful at the same time, will please address **Box L**, care of **NATIONAL ELECTRAGIST**, 15 West 37th Street, New York City.



The Only Knob and Dial Without a Set-screw

The unsightly and troublesome SET-SCREW is at last eliminated. No more splitting the head of the set screw or stripping of threads, perhaps ruining the dial.



List price of the
4" Model.....\$1.50
List price of the
3" Model.....\$1.00

Patented June 20, 1922.

To mount the TAIT-KNOB-AND-DIAL simply hold the dial with one hand and screw on the knob with the other, a few seconds does it. No tools are necessary. When fastened it is self centering and self aligning.

This beautiful patterned KNOB-AND-DIAL is made of the best grade of BAKELITE. If your dealer has none, write us, and we will refer you to one who has.

Dealers—If your Jobber is not stocked up write us and we will refer you likewise.

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TAIT KNOB & DIAL COMPANY, Inc.

11 East 42nd Street

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to get the greatest good out of his tubes without burning them out. All equipment which can be hidden is put inside the mahogany case and the binding posts are at the back. Rubber feet on the case prevent scratching furniture. The price is \$100 including the B battery. Made by the Radio-Art Co., 44 Whitehall Street, New York City.

Magno Rechargeable Storage Battery

The Magno Storage Battery Corporation, Aeolian Building, New York, has recently placed on the market a new type of storage battery, one which can be charged in one minute by anyone, anywhere. This battery is adapted to radio "A" battery equipment.

The outstanding feature of this battery, a two volt unit, is its interchangeable charged positive electrode. The battery is so constructed that it can be shipped bone dry in a fully charged condition. In this condition it will hold its full charge indefinitely. Upon the introduction of the sulphuric acid electrolyte its full strength become instantly available.

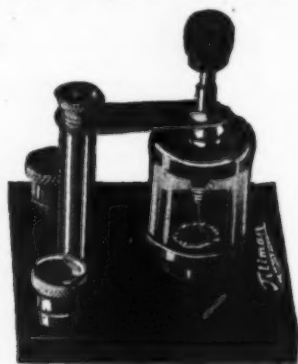
The charge is contained only in the positive electrode which can be removed when discharged and a spare fully charged electrode inserted to take its place. The discharged electrodes are returned to the dealer and exchanged for fully charged electrodes at 25 cents each.

There are a number of exclusive basic features of the Magno, such as the entire elimination of separators as well as the usual grid construction, the use of an all metal alloy negative plate, and the property in its active material which makes it possible to expose the plates to the air or light without any detrimental effect.

From the standpoint of the dealer, the Magno Round Cell Storage Battery has many advantages. Batteries are received and kept bone dry without the slightest deterioration. When the electrolyte is added, the battery will come to its full power immediately. No time is required for the battery to pick up, nor is any charging or service equipment of any kind necessary. A dealer in Magno Round Cell Storage Batteries would also carry at all times a supply of fully charged positive electrodes for exchange. These require no special care and will retain their strength indefinitely.

Tillman Crystal Detector

The accompanying picture shows the Tillman Crystal Detector—Enclosed Type—made by Wm. J. Millard & Company, Inc., 189 Lafayette St., New York City.



This detector is set on a highly polished composition base. All metal parts are nickel plated and hand polished. The slider rod to which the hair thickness catwhisker is

attached is held in a spring grip universal ball, which makes for unusually smooth adjustment. The glass tube enclosing the galena and catwhisker is clear and has ground edges.

Vict-Ra-Phone Combination Set

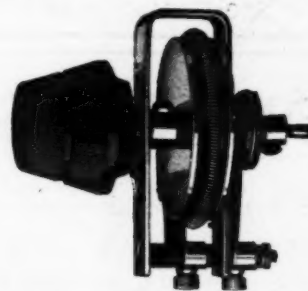
A distinct novelty in a combination of a phonograph and radio phone receiving set is being manufactured by the Victor Radio Corp., 795 East 135th Street, New York City. The cabinet contains a phonograph on one side and a receiving set on the other. The receiving set consists of a tuner having a wave length range of from 150 to 3,000



meters, a detector, and a two-stage amplifier. It is so constructed that the horn can be used either for the phonograph or as a loud speaker. The price is \$300. Complete with tubes, filament and plate (B) battery the price is \$365. The Victor line also includes a type 104 detector, \$16.50, detector and one-stage amplifier, \$40; two-stage amplifier, \$45, three-stage amplifier, \$65, condensers, variometers, variocouplers and rheostats. The Vict-Ra-Phones are also obtainable in other case models, a Sheraton, or William and Mary period being priced at \$250 bare, \$315 complete.

C-H Vacuum Tube Rheostat

The Cutler-Hammer Mfg. Company, Milwaukee, Wis., will soon place on the market the C-H Vacuum tube rheostat. It will be furnished in two styles—with vernier adjustment for control of detector tubes, or without vernier



for control of amplifier tubes. They are designed to carry 1 ampere and have an operating range of from 0 to 4 ohms. Two amperes may, however, be carried in an emergency.

These new rheostats are built along entirely new lines and incorporate many novel features. A full off position is provided, eliminating the necessity of additional switches in the A battery circuit. A full on position is also provided which makes total battery potential available, ren-

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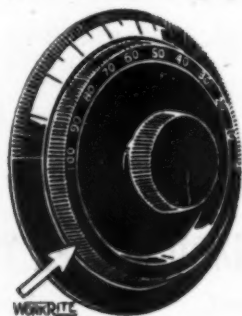
dering charging unnecessary until its full voltage has dropped below tube requirements. A nicked pointer indicates at all times the amount of resistance in the circuit.

The spring contact fingers are adjustable, and are so mounted as to lie in the direction of travel of the resistor, insuring smooth, quiet, and positive regulation. The large number of turns of low resistance each cut out or in, one at a time, provides fine gradation of control, minimizing clicking in the receivers during filament adjustment.

The rheostats are designed for panel mounting and are readily adjustable for panels ranging from $\frac{1}{8}$ to $\frac{1}{2}$ inch in thickness. Cone shaped knobs of Thermoplas are provided which are of excellent appearance, and do not cramp or tire the fingers.

Workrite E-Z Tune Dial

This is a late addition to the Workrite line made by the Workrite Mfg. Co., Cleveland, Ohio. In addition to the grip on the knob, the dial has a grip on the rim. This



arrangement allows rapid rough setting by the use of the knob and finer accurate setting by using the rim grip. The dial is highly polished, is $3\frac{1}{2}$ inches in diameter and is made for either $\frac{1}{4}$ or $\frac{3}{16}$ inch shaft. The price is 75c.

Champlin Filament Rheostat

A non-magnetic filament rheostat is being made by the Champlin Mfg. Co., 90 Broadway, New York City, to sell at retail for \$1. The base is Anhydroplax, the taper knob enameled and all parts nickel buffed. The heating element is high quality and the resistance unit firmly attached. The contact arm is of the non-scratching type and the insulation efficiency runs very high.

ABC Variable Condensers

The variable condensers manufactured by the Jewett Mfg. Corp., 342 Madison Ave., New York City has aluminum plate .022 in. thick with individual spacers. The stop acts on all moving plates and there is an adjustable brass friction bearing. The shaft turns in a solid brass bushing which extends through the head. All studs are exactly spaced and there is a minimum loss due to the $1\frac{1}{4}$ in. between opposite polarities. Prices on the Receiving Condensers range from \$15 down to \$2.25 and on the C. W. Transmitting Condensers from \$6 to \$9.75.

Incorrect Address

In the September issue the address of the Queens Radio Company, Inc., of Winfield, L. I., was incorrectly given as 25 Meyers Avenue. It should have been 12 Forest Street. This company makes a specially adapted vario coupler and vario meter which are sold through reliable electrical dealers by special arrangement.

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